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The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

Published Every Thursday TULSA, OKLAHOMA, APRIL 7, 1927 $6.00 a Year

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PRODUCES QUALITY GASOLINE

Facts from performance

A Jenkins Unit during a recent continuous 1448 hour run [60 1/3 days] produced 25,263 barrels of gasoline. The liquid recovery, not including absorption gasoline, was 97.25%.

GRAVER Corporation Founded 1857

EAST CHICAGO, INDIANA

NEW YORK Grand Cent. Term. | CHICAGO Steger Building | TULSA Atlas Life Bldg. | HOUSTON West Building

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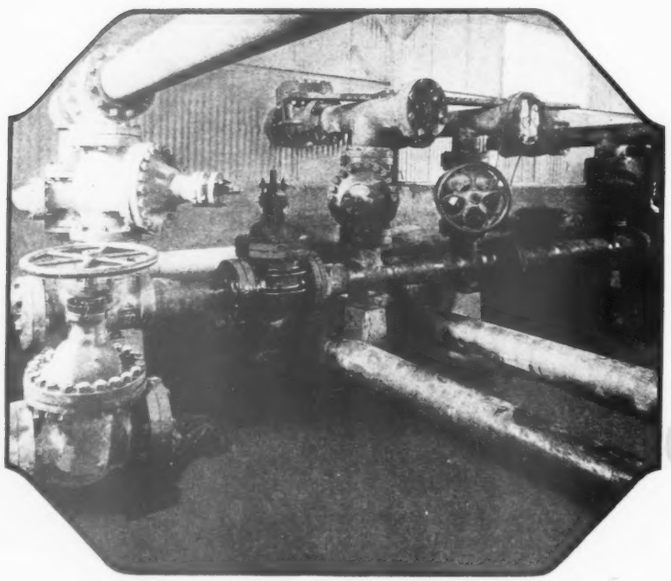
for Pipe Line Safety



CHAPMAN VALVES in service for the Humble Pipe Line Company, at McCamey, Texas

Enduring, leak-proof service is the quality which has made CHAPMAN VALVES of Chrome Nickel Steel standard equipment in every branch of the oil industry. Valves for the well head, for the refinery, for the pipe line, differing in design, but possessing in common the uniformly high resistance under great pressures which results only from the advanced methods and careful inspection consistently maintained in the Chapman plant.

There is a Chapman branch office or distributor near you, ready to fill your order right out of stock for immediate shipment.

The Chapman Valve Manufacturing Co.

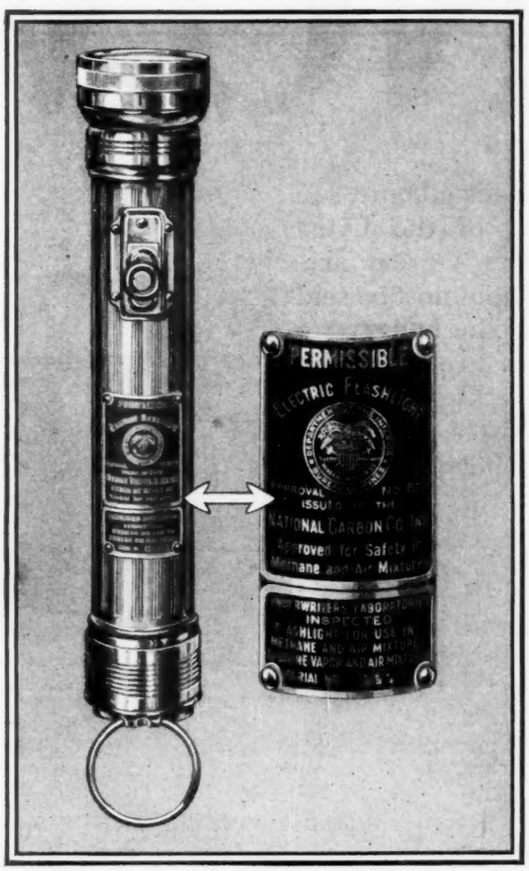
Indian Orchard, Mass.

Stocks at
The Chapman Valve Manufacturing Co., Tulsa
Branch Offices: New York, Boston, Chicago, Cleveland, Detroit, Houston, Atlanta, Tulsa, Syracuse, Pittsburgh, Philadelphia, San Francisco, Los Angeles.
Distributors: E. L. Wilson Hardware Co., Beaumont and Houston

CHAPMAN VALVES

April

The



Officially approved!

THE Eveready Safety Flashlight shown herewith bears the official approval of the Bureau of Mines and the Underwriters' Laboratories for use around combustible gases and volatile fumes. Portable light in its safest and most convenient form—the electric torch.

A special feature of the Eveready Safety Flashlight is the spring-mounted lamp. In case the lamp glass is shattered (a possibility quite remote), the circuit is instantly opened. All hazard of igniting gases or vapors in the surrounding atmosphere is eliminated.

In all other respects, this flashlight is a standard Eveready 3-cell Focusing Spotlight with 300-foot beam. Leading gas and oil plants, and mines, have been quick to see the wisdom of adopting this safety flashlight. They keep it at top efficiency with fresh, strong Eveready Batteries — the brightest-burning, longest-lasting flashlight batteries made.

Manufactured and guaranteed by
NATIONAL CARBON COMPANY, INC.
New York San Francisco
Canadian National Carbon Co., Limited, Toronto, Ontario

EVEREADY FLASHLIGHTS & BATTERIES
–they last longer

Eveready Radio Batteries . . . Eveready-Mazda Miniature Lamps . . . Eveready Columbia Dry Batteries

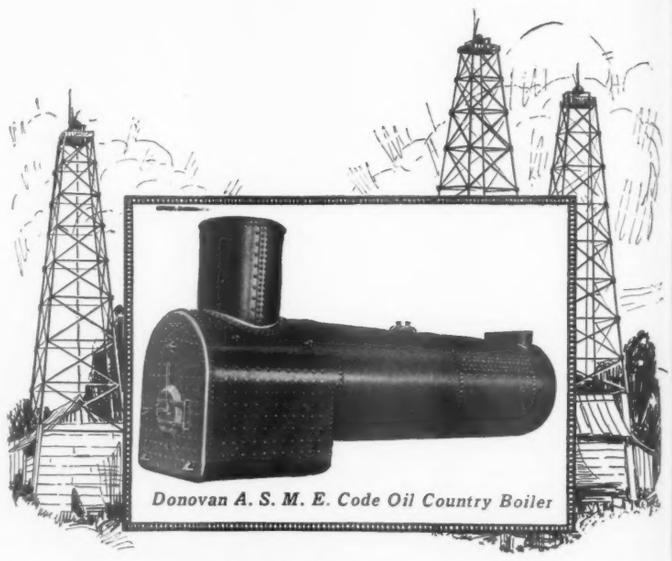
The Oil and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 a year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at the postoffice at Tulsa, Okla., under the Act of March 3, 1879.

DONOVAN

AXELSON MACHINE CO., *Sucker Rods, Pull Rods, Plunger Working Barrels (Pumps) etc.*—BEAUMONT IRON WORKS CO., *DREADNAUGHT Rotary Drilling Equipment, Water-Cooled Draw Works, Pumping Hoists, Traveling Blocks, etc.*—CARBIC MFG. CO., *Acetylene Gas Generators and Welding Equipment.*—DONOVAN BOILER WORKS, *Oil County Boilers and Tanks.*—FRICK-REID SERVICE BELTING, *Rubber Covered and Friction Surface.*—JENSEN BROTHERS MFG. CO., *Pumping Jacks.*—NATIONAL TRANSIT PUMP & MACHINE CO., *Power and Steam Pumps.*—J. P. RATIGAN, *Grips, Clamps, Beam Hangers.*—JOSEPH REID GAS ENGINE COMPANY, *Gas and Oil Engines, two and four-cycle, Band Wheel and Direct Drive Pumping Powers.*—ROSSENDALE REDDAWAY BELTING & HOSE CO., *"Camel Hair" Belting, Belt Clamps.*—WHITLOCK CORDAGE COMPANY, *Manila Cordage, Bull Ropes and Cat Lines.* LAPWELD AND SEAMLESS TUBULAR GOODS.—WALWORTH CO., *Valves, Fittings and Tools for Steam, Water, Gas, Oil and Air.*

A MAN builds a home. In one end of the living room he wants a great fireplace. It might almost be said that he builds the house as a setting for his fireplace. He wants it right. He expects to enjoy it for years, seeing visions in its embers, dreaming in its warmth.

Materials are ordered. Masons begin their work. They spare no pains. Specifications are followed out in detail. Step by step the chimney grows and is completed. It is a very beautiful fireplace, with a big hearth and a fine mantel. The owner is proud.



Donovan A. S. M. E. Code Oil Country Boiler

A fire is kindled. Only a smudge results. The chimney doesn't draw. The fireplace throws out no heat. The room is filled with smoke. The job is a failure. Something is lacking—something which has nothing to do with materials or outward appearance or fidelity to specifications.

There are few really successful fireplaces. It takes something more than brick and stone and mortar and given dimensions.

And little as you may have thought about it, boilers are that way. It takes something more than good steel and iron to build one, and how it looks when it is done has nothing whatever to do with how successful it is.

Built into every Donovan Boiler is that something which makes a boiler successful. Wherever you find one in the oil country you find a boiler in which steam generates easily and holds on tenaciously regardless of the depth of the hole, the weight of the tools, or the speed of the operations. Every Donovan is economical of fuel, and because of its very efficiency requires few repairs and then only at long intervals.

You may be a very busy man, and you may figure that any good boiler is all right, but you'll never regret the day you investigate our claims for Donovans.

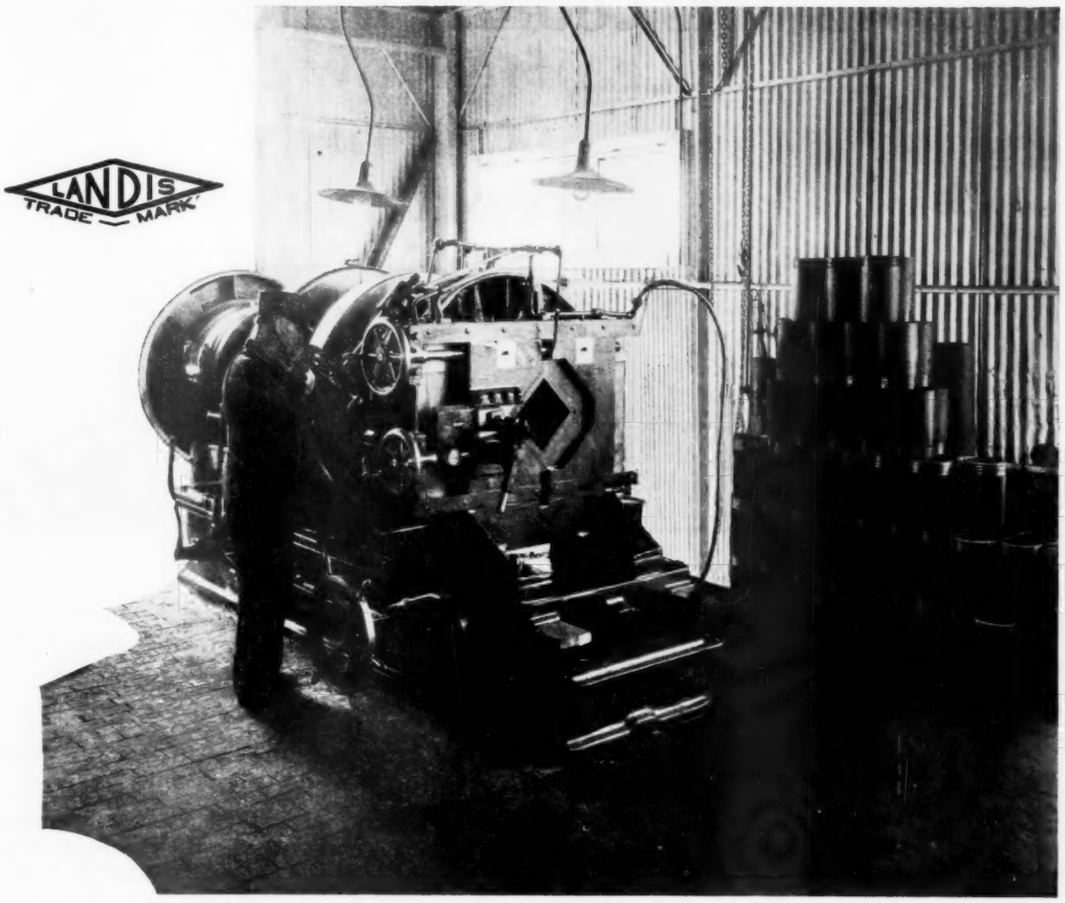
FRICK-REID

SUPPLY CO.

Tulsa, Oklahoma **Pittsburgh, Pa.**

East of the Mississippi—the Frick & Lindsay Co. **West of the Mississippi—Stores Everywhere**

There Can Be No Compromise With Quality in Threading Pipe and Casing



An 18" Landis Pipe Threading and Cutting-Off Machine in Oklahoma

Well-formed threads of correct taper are of such vital importance that Drillers—as well as all users of pipe and casing—are insisting upon Landis cut threads.

Thousands of dollars and days of untiring efforts may be wiped away by one bad thread. To eliminate any chance of waste due to bad threads is the part played by Landis Pipe Threading and Cutting Machines in the Oil Fields of the World.

Executives and owners of shops where pipe and casing are threaded will safeguard their best interests by employing the Landis Method and the Landis Die Head and Machine.

We will be glad to tell you of the users of Landis Pipe Machines near you. Write for this information and then investigate.

LANDIS MACHINE COMPANY, Waynesboro, Penna.

Detroit Office: 5928 Second Blvd.

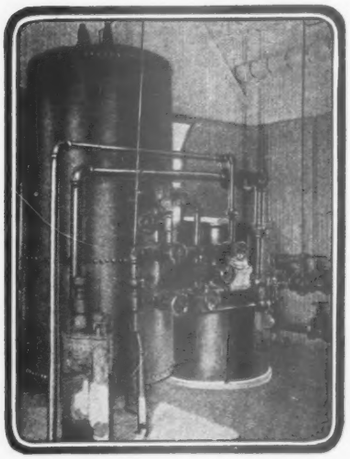
DOMESTIC AGENTS: Marshall & Huschart Machinery Co., Chicago, Ill.; Marshall & Huschart Machinery Co. of Indiana, Indianapolis, Ind.; Colcord-Wright Machinery & Supply Co., St. Louis, Mo.; R. B. Whitacre & Co., St. Paul, Minn.; Hamilton Machinery Co., Chattanooga, Tenn.; Young & Vann Supply Co., Birmingham, Ala.; Woodward, Wight & Co., New Orleans, La.; Shreveport, La.; Tampa, Fla.; Jos. T. Ryerson & Son, Houston, Texas.; Hendrie & Bolthoff Mfg. & Supply Co., Denver, Colo.; Salt Lake Hardware Co., Salt Lake City, Utah; Harry M. Euler Co., Portland, Ore.; Hallidie Machy Co., Seattle, Wash.; Hallidie Co., Spokane, Wash.; Herberts Machinery & Supply Co., San Francisco and Los Angeles, Calif.; R. S. Armstrong & Bro. Co., Atlanta, Ga.

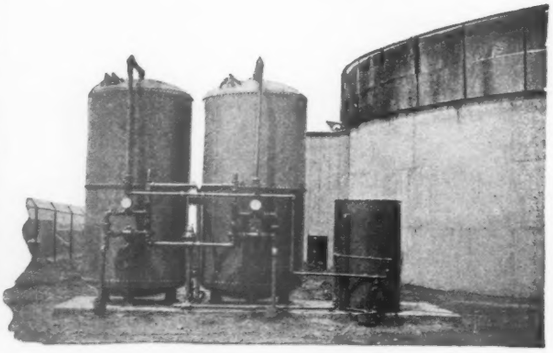
CANADIAN AGENTS: Canadian Fairbanks-Morse Co., Toronto and Montreal.

FOREIGN REPRESENTATIVES. Benson Brothers, Ltd., Sydney; Schuchardt & Schutte, Berlin, Vienna, Prague, Warsaw; R. S. Stokvis & Zonen, Rotterdam, Brussels, Soerabaya; M. Almeida & Cia, Sao Paulo, Rio de Janeiro; Alfred Herberts, Ltd., Coventry, Osaka; Burton Fils, Paris; D. Drury & Company, Johannesburg.

HARD WATER

Lowers Cooling Efficiency





HEAT and cold are always trying to strike a balance. They will—unless something interferes.

With cooling coils, this "something" is scale.

Hard water is the cause of all this trouble. The remedy is to eliminate the scale-forming salts.

In the Mid-Continent field and on the coast a number of refineries are using Paige-Jones rapid rate, upward flow zeolite softeners for rendering harmless the water used for cooling coil purposes.

Hard water was a problem in these plants but not so any longer. One refinery reports that among other advantages, they were able to save $1,000.00 annually on condenser cleaning operations because of the Paige-Jones softener.

Are there opportunities for similar savings in your refinery by means of softened water? Why not go into this question with a Paige-Jones engineer?

High efficiencies and low operating costs of Paige-Jones rapid rate upward flow zeolite softeners are due to the following features:

Constant pressure from the softener. Less pressure loss through the bed. No backwashing of bed necessary. Less salt for zeolite regeneration. Less floor space for required capacities.

Paige-Jones originated and developed the rapid rate, upward flow zeolite softener.

PAIGE & JONES CHEMICAL CO., Inc.

General Sales office, Technical Dep't and Works: Hammond, Indiana
Executive Offices: 461 Fourth Ave., New York. Offices in Principal Cities

PAIGE-JONES
WATER SOFTENING

ZEOLITE AND LIME SODA SOFTENERS · PRESSURE SAND FILTERS
BOILER FEED WATER TREATMENTS · HOUSEHOLD WATER SOFTENERS

Luck

is what happens when *preparation* and *opportunity* meet.

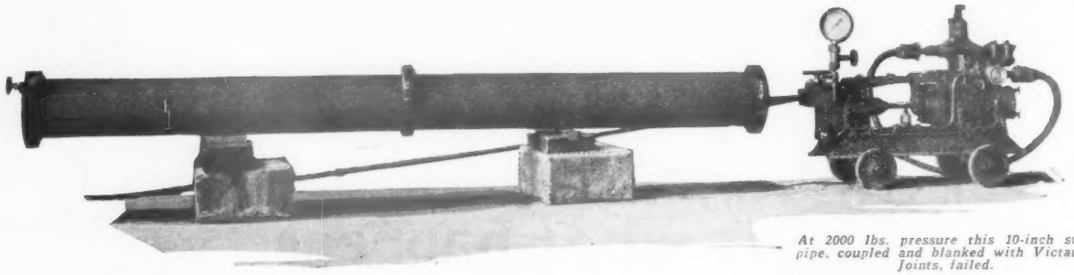
THERE are drillers in this country who have used Swan Underreamers for more than forty years; there are many drillers who have used Swan Underreamers for more than thirty years; there are hundreds of drillers who have used Swans for a quarter of a century, and thousands who have used no other for over a decade.

They will all tell you they always have good luck with Swans; they will tell you the Swan is the best underreamer made, and tell you why they like it.

Swan Underreamers were the best underreamers in the field forty years ago—and they are still the best underreamers made.

For over forty years they have been constantly improved, both in workmanship and material, and this long preparation, plus the opportunity to serve you, means good luck to you on underreaming jobs.

THE BRIDGEPORT MACHINE COMPANY
WICHITA KANSAS



At 2000 lbs. pressure this 10-inch steel pipe, coupled and blanked with Victaulic Joints, failed.

Victaulic Joints Held Tight When the Steel Pipe Ruptured

Lap welded steel pipe, five-sixteenths of an inch thick, with an inside diameter of ten inches was used in this test. Victaulic Joints coupled the pipes together and Victaulic Joints on the grooved ends of the pipes closed the pipes with Victaulic Blank Ends.

Pressure was gradually and progressively applied until at a pressure of 2000 lbs. per square inch one of the pipes failed longitudinally.

The Victaulic Joints showed no leakage and suffered no damage. The joints on the pipe ends each carried over 80 tons end load in addition to bursting stresses.

This test clearly shows the enormous strength of grooved pipe ends—far stronger than screwed joints as less metal is removed. It also proves that the Victaulic Joint is the strongest part of a pipe line.

Some Advantages of This New and Improved All-purpose Pipe Joint

VICTAULIC JOINTS up to 12 inches diameter can be put in place by unskilled labor in 2 minutes.

VICTAULIC JOINTS are flexible under presssure or vacuum, allowing a deflection of approximately 5 degrees without impairment of joint strength or leak-proof quality.

VICTAULIC JOINTS are all expansion joints—the pipe ends do not butt and longitudinal movement does not affect the tightness of the joint.

VICTAULIC JOINTS have greater tensile strength than full-threaded screwed joints.

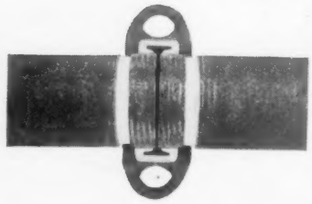
VICTAULIC JOINTS are shock-absorbing—vibration and even earthquakes do not affect Victaulic Joints.

VICTAULIC JOINTS keep repair costs low because any defective pipe length can be quickly removed and replaced without disturbing any other length.

VICTAULIC JOINTS are available for steel, wrought iron or cast iron pipe, also hose—for all pressures from vacuum to in excess of 2 tons. They are in use by leading mining, oil, gas and water companies.

For detailed information on shock-absorbing, flexible, leak-tight Victaulic Joints, typical installations and lists of uses and users, write for Victaulic Bulletin No. 1.

VICTAULIC COMPANY OF AMERICA
26 Broadway New York, N. Y.



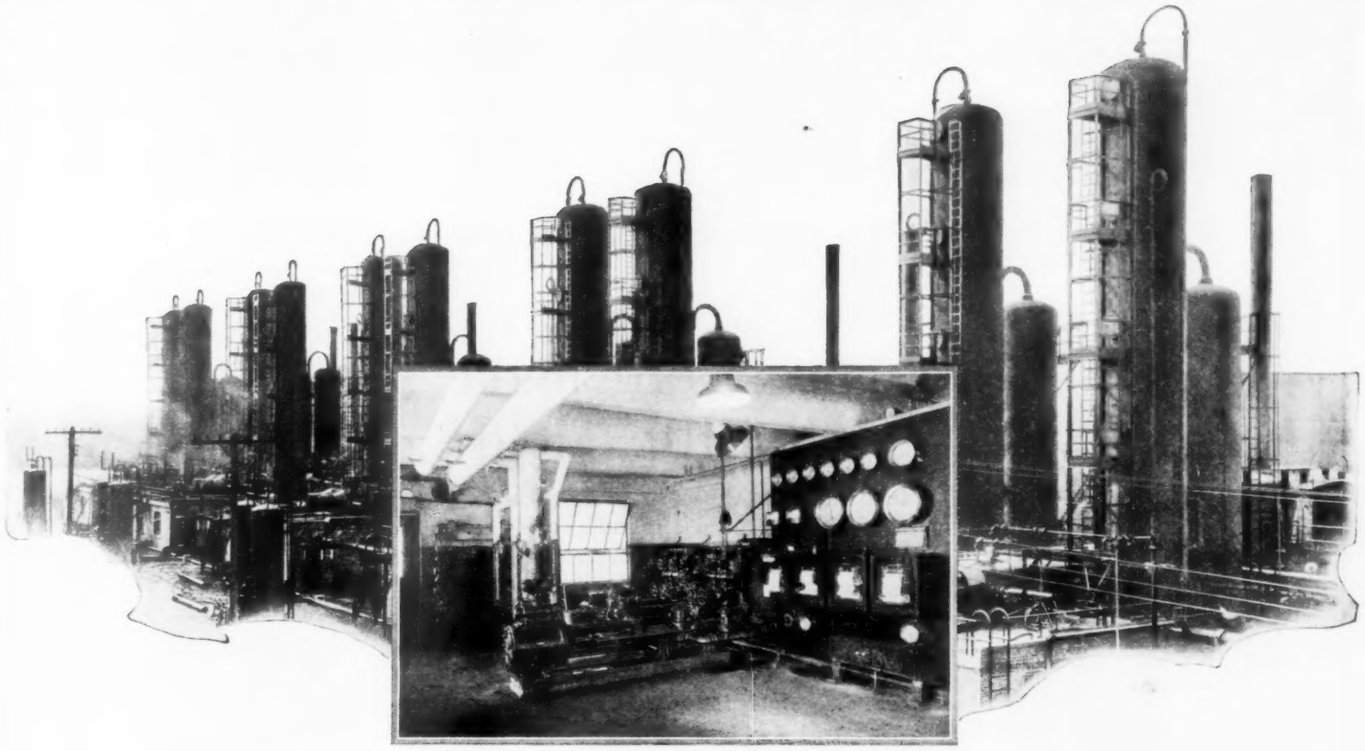
VICTAULIC
REG. U. S. PAT. OFF.

Flexible and Leaktite Pipe Joints

"FOR EVERY JOINT ON THE LINE"

For Crude Oil, Gas, Water, Sewage, Compressed Air, Etc.

LOOMING UP!



Refiners today not only utilize control—they capitalize it!

The principle of AUTOMATIC Still and Tower Temperature CONTROL is rapidly looming into general recognition as a basic requisite of refining economy.

It is not only recognized but *capitalized.*

Engineering data from Brown Automatic Control installations provide a valuable basis for determination of a suitable automatic control equipment for your plant.

"To Measure is to Economize"—*Pascal.*

Draw on our experience.

Get Catalog No. 15. Confidential, careful and personal attention will be given to your inquiry.

The Brown Instrument Company
4412 Wayne Avenue Philadelphia, Pa.

Branches in Principal Cities

Pyrometers
Automatic Temperature and Pressure Controls
Flow Meters
Recorders
CO_2 Meters
Pressure Gauges
Vacuum Gauges
Liquid Level Gauges
Draft Gauges
Thermometers
Tachometers
Hygrometers

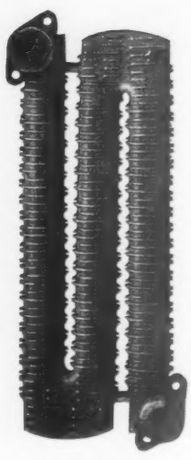
Brown Automatic Temperature Control

STERLING

STERLING OIL SECTIONS

For manifold use - for continuous use - for cooling

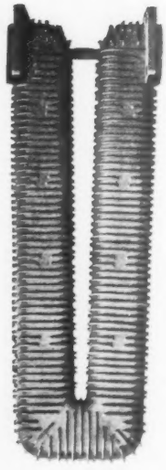
Have Demonstrated Their Worth in the Amarillo Field



14 Square Foot
STERLING OIL Section

Realizing that the corrosive action of certain oils will attack metals unless special mixes are made to counteract the corrosive elements in the oil, we have run tests on special mixes with the result that *under the same operating conditions—using the same crude* —the Amarillo Refining Company, Amarillo, Texas, has proved that the life of the *NEW* STERLING OIL SECTIONS has increased 50% to date and the Sections are still intact, giving promise of more months of efficient service.

We are constantly improving our product and finding new applications for STERLING OIL SECTIONS and ACCESSORIES in refineries.



19½ Square Foot
STERLING OIL Section

STERLING OIL SECTIONS and ACCESSORIES are used in—

Condenser Boxes
Towers
Heat Exchangers
Gasoline Plants
Pre-Heaters

We shall appreciate the opportunity of presenting the possibilities of these Sections to you.

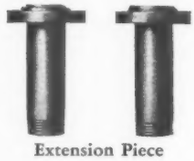
AMERICAN RADIATOR COMPANY

Manufacturers of IDEAL Boilers for Oil Burning

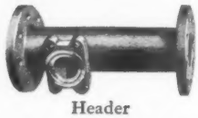
40 W. 40th St., New York 816 S. Michigan Ave., Chicago

STERLING OIL Sections are immediately available at our plants in Kansas City, Mo., and Springfield, Ohio

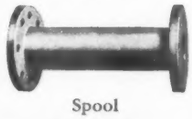
Companion Flanges



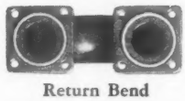
Extension Piece



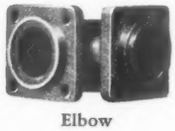
Header



Spool



Return Bend

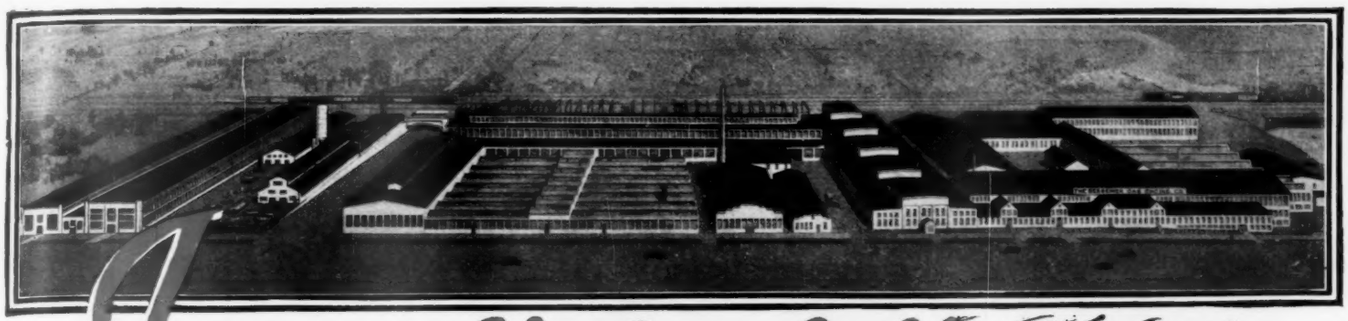


Elbow

Flanged Tee

Ferrule

These STERLING Accessories provide special cast-iron construction throughout.



Immediate delivery—on Bessemer Type Ten Compressors—for both high and low pressure work

THE BESSEMER FACTORY can make immediate deliveries on Type Ten Compressors—both with special cylinders for high pressure work or with standard cylinders for lower pressures for gasoline plant work.

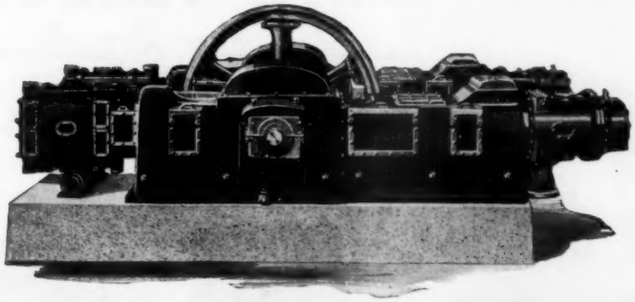
Someone started the rumor that Bessemer Type Tens were sold out for months ahead. This is not exact. True, the huge Bessemer Factory is working at capacity to meet the enormous demand for these popular compressors, but greatly increased production facilities have enabled Bessemer to keep pace with the ever-increasing orders. Additional plant space, new machinery and 1,600 skilled workers enable the Bessemer Factory to ship Type Tens as fast as the orders are received at the factory.

In spite of the large and growing demand for Type Tens with special high pressure cylinders for flowing wells and for the standard units for gasoline plant work, you can get Bessemers (the best by proven performance) *immediately*. Of course, Bessemer is doing a tremendous business—sheer merit has built it up—but their plant capacity is tremendous too.

You *can* get Bessemers—*now!* Don't be misled into buying stop-gap equipment when you can get known performance, known reliability—known quality—Bessemers.

THE BESSEMER GAS ENGINE COMPANY

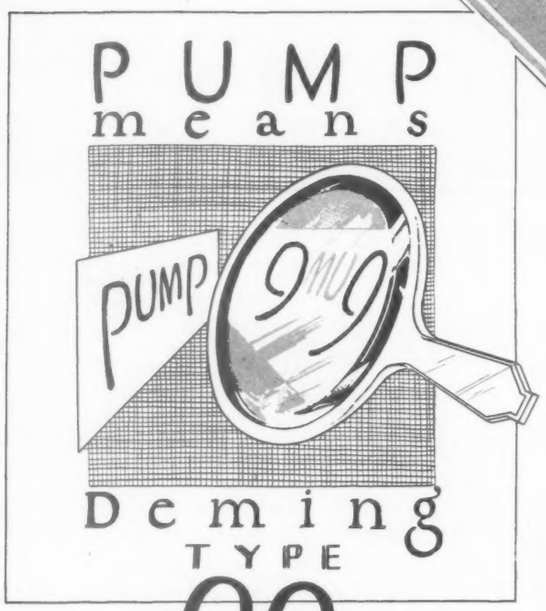
52 York Street ∴ ∴ Grove City, Pa.



BESSEMER

BESSEMER OIL FIELD ENGINES – COMPRESSORS VACUUM PUMPS – ROLLER PUMPING POWERS

PUMP means



Deming TYPE 99

"The handiest pump on the lease," say users of the new Deming Type "99."

Portable, fool proof, simple in construction, efficient . . . the Deming "99" is winning a host of friends in the Oil Industry because of its ability to handle all lease pumping problems.

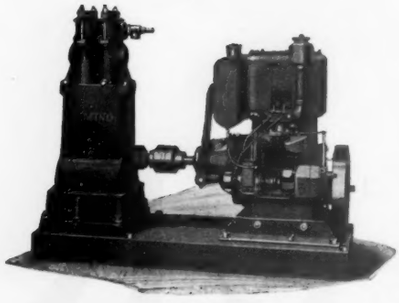
Ask for our new bulletin on Deming Type "99."

THE DEMING COMPANY
Salem, Ohio

Distributed to the Oil Industry by

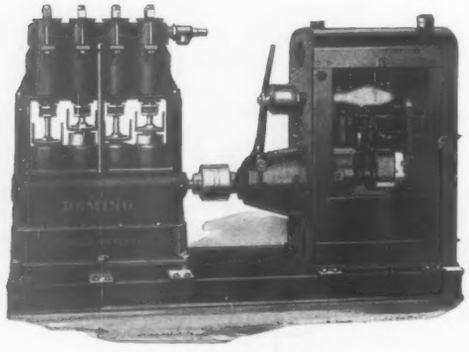
SMITH SEPARATOR COMPANY
Tulsa *Okla.*

924 Post Dispatch Bldg., Houston, Texas
1414 F. & M. Bank Bldg. Fort Worth, Texas
240 Dalzell St., Shreveport, La.

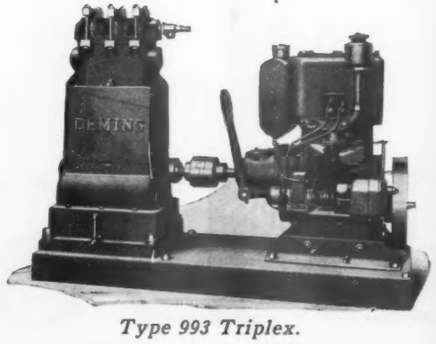


Type 992 Duplex.

Type "99" Duplex, a compact unit for emergency pumping service.



Type 994 Quadruplex.



Type 993 Triplex.

Type "99" Triplex, a little more capacity, than the duplex.

The "99" Quadruplex, large capacity, extreme portability, a unit that will handle any pumping job within its capacity.

The LARKIN
Improved
SAND PUMP
designed for the toughest jobs

The LARKIN Improved Sand Pump is flexible. It will operate successfully at all depths—under all conditions. Under ordinary conditions it will, when equipped with its Regular Bottom, bring out the sand and sediment in record time.

And for that tough job—where cavings have packed hard, the Larkin BIT Bottom may be used. It will break up the hard formations efficiently, and so quickly pass the material through to the pump, that the pump may be operated at full capacity without being delayed to any extent. To be prepared to meet the toughest pumping jobs, get the Larkin and have it equipped with BOTH the REGULAR and BIT Bottoms.

The Larkin will clean out more wells, for more years, than any sand pump made. Its barrel is of "NATIONAL" Seamless Steel Tubing. In every detail of construction, the materials used are unexcelled for quality. The bottoms are made of an excellent grade of steel and the Clapper Valve is provided with specially cured leather which gives very long service.

With the Larkin Pump and both of its bottoms, the driller has the best equipment there is for sand pumping—no matter how tough the job. Sold by Leading Supply Stores.

Write for Circular and Price List.

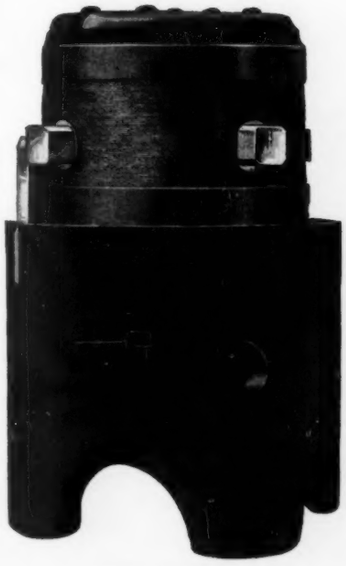
Manufactured only by

LARKIN & CO.

Manufactured only at

BUTLER, PA.

Furnished with either or both of these bottoms



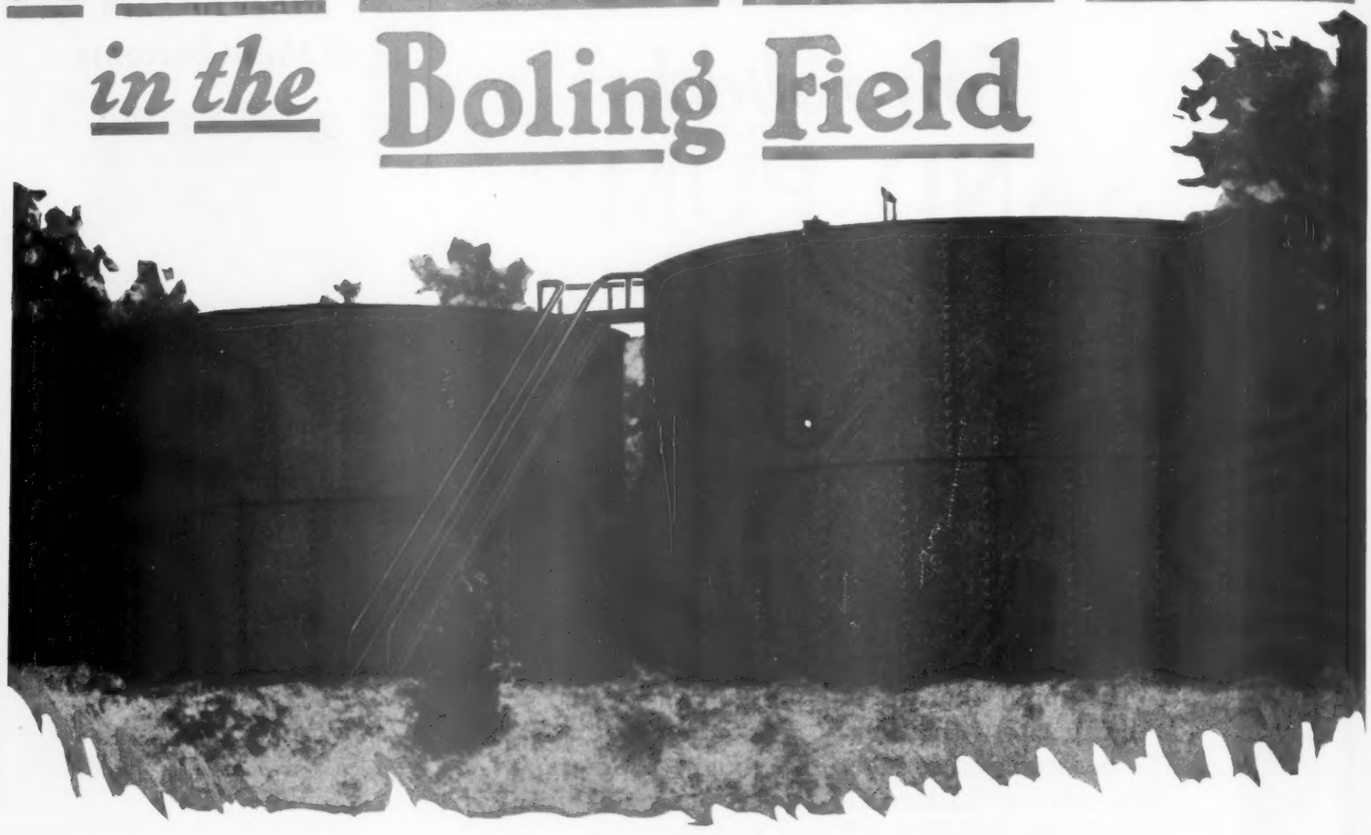
REGULAR BOTTOM

In the Larkin Regular Bottom, the legs are short, allowing the pump to rest as near the bottom of the hole as possible and still obtain the necessary suction to remove the greatest amount of sand and sediment quickly.

BIT BOTTOM

This bottom is used for drilling and breaking the sand loose. Its chisel shape design is unique, prevents sticking, and allows successful operation in tightly packed sands.

2 More LARGE Bolted Tanks in the Boling Field



and they are Butler Tanks

These are 5,000-barrel Butler Bolted Tanks; they are vapor-tight and have a steel stairway. They are the property of the Sinclair Texas Pipe Line Company, and were erected by the Peer Bolted Steel Tank Co., Houston, Texas.

Fewer chances for leaks and quicker erection are assured in these Butler Tanks on account of Butler sheets being larger. As fewer sheets are needed, fewer seams result and tightness is effected.

Massive punching machines make all holes in Butler sheets and therefore these holes are always placed accurately.

See one of Butler dealers for further information and prices or write us.

Any kind of welded tank made to your specifications.

These reliable dealers erect Butler Bolted Tanks and are ready to serve you speedily:

M & V Tank Company, at Wichita Falls, Vernon, Olney, Nocona, Cross Plains, Albany, Cisco, Isom, Pampa, Brownwood and Amarillo, Texas.

Drane-Humphrey Co., at San Angelo, Big Lake and McCamey, Texas, and Carlsbad, New Mexico.

Drane Tank Company at Tulsa, Seminole, Hallett, Shawnee and Holdenville, Oklahoma, Eldorado and Madison, Kansas.

M. A. Trimmer, at Blackwell, Oklahoma.

Southern Steel Company at San Antonio and Mirando City, Texas.

Butler & Gamble at 300 Great Republic Life Bldg., Eighth and Spring Sts., Los Angeles, California.

Petroleum Specialties Co., at Casper, Wyoming.

Thomas Moran at Oil City, Shreveport and Georgetown, Louisiana.

Continental Supply Company, at Kevin, Montana.

Butler Products include: READY-MADE Steel Buildings, Cans, Funnels, Buckets, Measuring Pumps, Truck Tanks, Underground Tanks, Storage Tanks, Bolted Tanks, Etc.

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Butler Manufacturing Co.

Kansas City, Mo. **Minneapolis, Minn.**

Foreign Dept.: Kansas City, Mo.

Positively the last appearance of Jenny Lind

FOR a long time this was the greatest joke in America. Jenny Lind's last appearances were legion.

And it is almost as much of a joke nowadays to see claims that a product—"eliminates abrasive wear." It can't be done.

Stelliting the surface of a wearing part with Haynes Stellite will *cut down* abrasive wear. It will increase the length of service of the part from three to twelve times. But even Stellited parts wear out—after a while (although we have never found anything that approaches Haynes Stellite in its resistance to abrasion).

It is simple to make Stellited parts. All you have to do is melt a rod of Haynes Stellite in the oxy-acetylene flame and flow the molten metal over the wearing surface. (Yes, you can build up your old, wornout parts, and use them again.) This layer of Haynes Stellite certainly does last. We do not ask you to believe it. Try it out. We'll be glad to show you where it can be used.

Our booklet—STELLITING METAL PARTS—will interest you.

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One of the Best Informed

Everywhere the verdict is the same, whether in the fields of America, or abroad:

Medway Oil and Storage Company, Limited.
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March 1, 1927.

The Oil and Gas Journal,
Tulsa, Oklahoma.

Gentlemen:

We find The Oil and Gas Journal one of the best informed journals received and it is widely read here.

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MEDWAY OIL & STORAGE CO., Ltd.

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THE OHIOLOCK PLUG

OHIOLOCK---Patent Applied For.

To Replace Old Style Compound Plug

See that this Trade Mark is in the Vital Spot of your Pressure Units

The "Ohiolock" plug now takes the place of ordinary compound plug used in Cross Cracking units. This gives you an opportunity of gaining "Ohiolock" advantages in your present installations.

This more efficient closure enables you to cut your cleaning costs by reducing to a minimum the time needed to remove the plugs and put them back in place.

Simplicity and ease of operation make the new plug much quicker acting than the old. Your stills get back on stream quicker.

It cannot stick. There are no threads to corrode. When in place, it is there to stay until you are ready to take it out. It is then removed without fuss or trouble. You will never have to put a torch on "Ohiolock" to remove it.

Write for "Ohiolock" Bulletin

The Ohio Steel Foundry Co.

Springfield, Ohio

Pioneers in Return Bends for Pipe Stills

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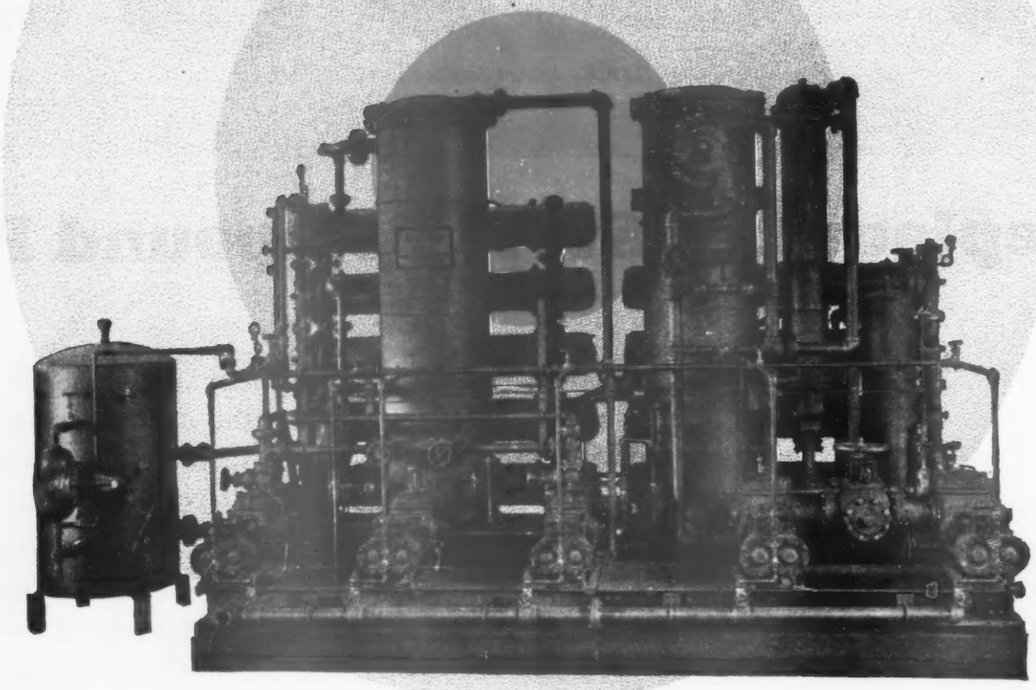
Springfield
Lima

BRAUN
PORTABLE
DISTILLATION UNITS

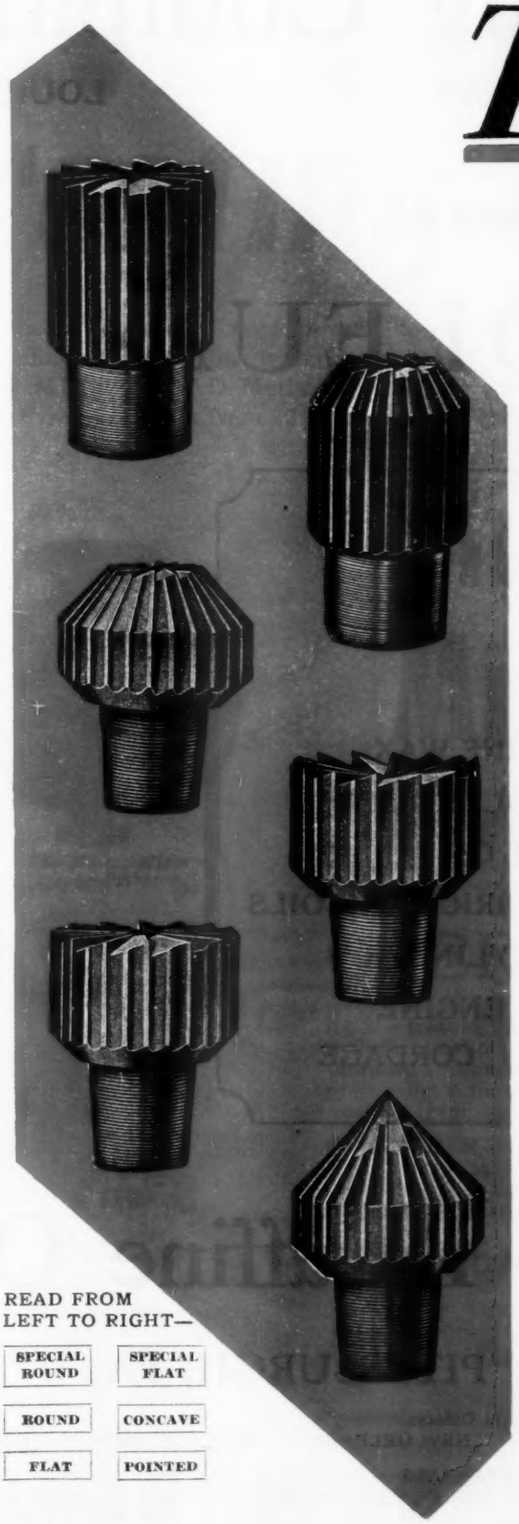


THE BRAUN Portable Distillation Unit is completely assembled on two sectional steel foundations for quick portability by truck. It has a normal oil circulation of 60,000 gal. /24 hr. with a gasoline output, under average conditions, of 3000 gal. /24 hr. Stocked for prompt delivery.

Other BRAUN Portable, Mobile and Fabricated plants are supplied with gasoline capacities up to 40,000 gal. /24 hr.

BRAUN

C. F. BRAUN & CO.
Manufacturing Mechanical Engineers
ALHAMBRA, CALIFORNIA
New York Tulsa Dallas



READ FROM LEFT TO RIGHT—

SPECIAL ROUND	SPECIAL FLAT
ROUND	CONCAVE
FLAT	POINTED

Time!

EVERY minute on a milling job counts double . . . which is why you find Reed Milling Tools on jobs where they count costs close. They save time. They save a lot of time. Save time getting the milling done quickest; save time getting the drilling started again quickest. Reed Special Steel, specially hardened, makes the cut fastest; hence Reed Tools stand up longest . . . . on any milling job.

Reed Milling Tools

It is good practice to keep plenty of the various Reed types, flat and concave, round and pointed, ready . . . just in case! No loss is possible, for Reed takes back unused tools at full price. Reed Milling Tools are inexpensively sharpened; or rebuilt. Therefore their first cost is nothing to worry about. They are good for long, long service. Write in and get the catalog which fully describes them.

REED ROTARY DRILLING TOOLS

REED ROLLER BIT COMPANY

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Refiners of

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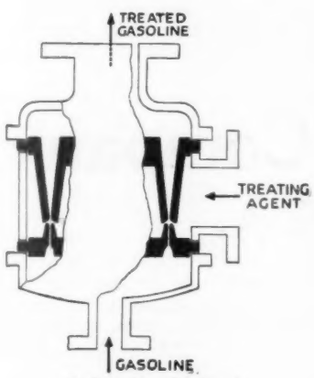
SAVE 20% to 80% in Treating Gasoline

Because it produces a *more intimate* contact between gasoline and treating agents, many leading refiners and gasoline manufacturers in California and other states have adopted the MASTER MIXER HEAD Method of treating gasoline; and these concerns have invariably reduced treating costs from 20% to a full 80% by using this more efficient method.

The Master Mixer Head—Patented



Indicating Action in Treating Gasoline

The Master Mixer Head

REDUCES INSTALLATION COSTS by eliminating expensive agitators, foundations, steam and compressor plants, buildings, pumps, etc. *REDUCES OPERATING COSTS* by eliminating evaporation and by saving labor, treating agent and time required to handle a given volume. Continuous operation replaces tedious batch treatment. Operator has accurate control of processes.

OPERATION: Gasoline is pumped into receiving chamber of Head, whence it passes through especially designed jets at a high velocity, into a zone containing the treating agent. By siphonic effect, the treating agent is drawn with the gasoline, through constricted openings above each jet, into the turbulence chamber. This process causes a most intimate contact—practically a temporary atomic union—between the gasoline and the treating agent.

The MASTER MIXER HEAD PRODUCES INTIMATE CONTACT between *any* liquids. It is ideal for blending gasolines, compounding lubricating oils, and for many other purposes. Our engineering department is at your service. *Write us fully.*

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Exclusive Mid-Continent Distributors:
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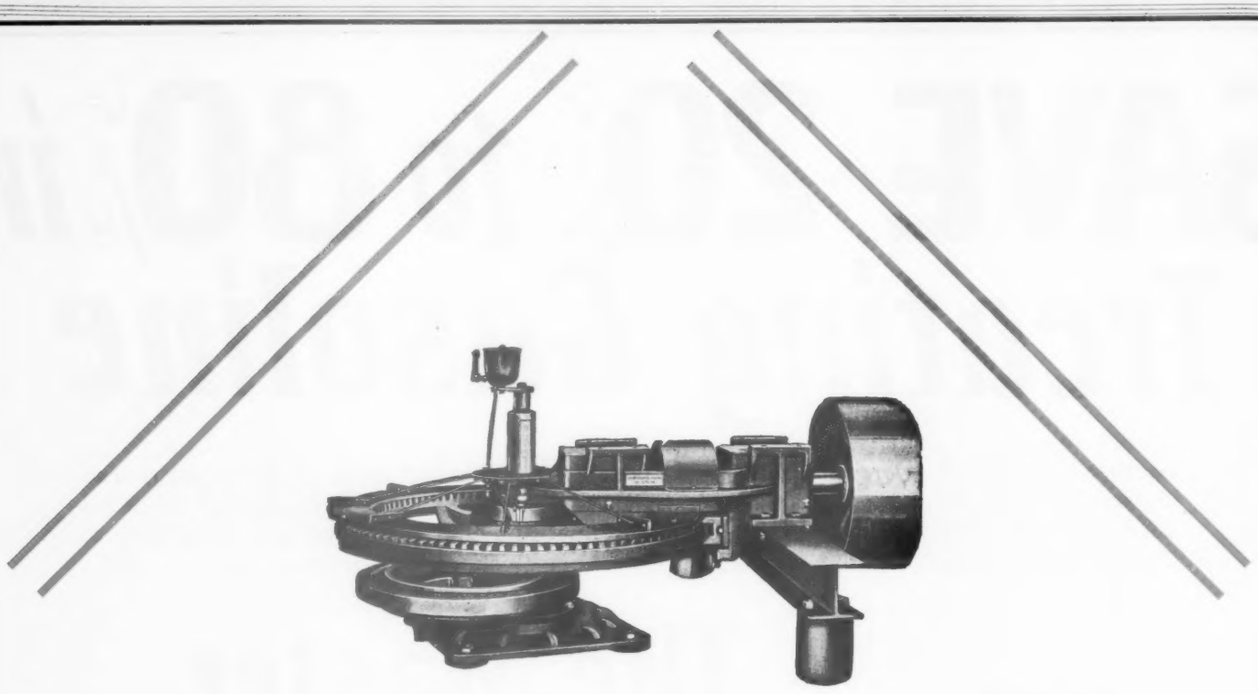
Tulsa, Okla.

PETROLEUM APPLIANCE COMPANY



Reid Underpull Geared Powers

1 Eccentric ——— 2 Eccentric

—*These Powers Have the Reid Dust-proof Construction*

Joseph Reid Gas Engine Company

Oil City, Pennsylvania, U. S. A.

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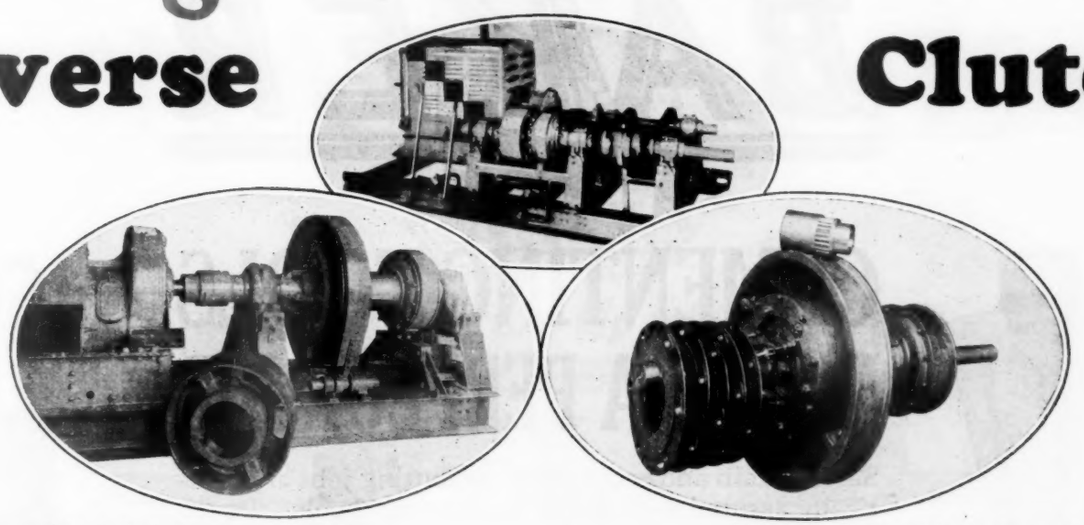
REID OIL FIELD MACHINERY

Stronger-Stardier-Surer Reverse Clutch



This clutch, of uncommon design, is of extra heavy construction. The main shaft is 4½" in diameter. Brake-band flange is 42" in diameter. The removable split pulley, shown above standing in the foreground, can be readily adjusted to meet operating conditions. For rotary drilling this pulley is removed and replaced by a driving sprocket.

The American bearing, sitting on the top of the clutch, shows the type of bearing used. The clutch is self-lubricating, steel construction throughout, and rated to carry up to 300 H.P. By using five 24" diameter discs, the manufacturers claim a much huskier clutch for this multiple disc type than is secured in brake or band type clutches.

The Portable Rig Company Inc., *uses*

"the Standardized Bearing of the Oil Fields" to improve their portable reversible clutch

By installing two *American Heavy Duty Roller Bearings* in their latest model clutch, this manufacturer has obviated the troubles familiar to users of clutches equipped with plain bearings.

In this clutch, *American Bearings* are located on the main driving shaft, under both ends of the pulley, in such position as to carry the full load of the clutch at all times.

In addition to making the lubrication system grease-tight the presence of these bearings mean to the user:

That a constantly *tight tension on the belt* may be maintained without danger of burning these bearings;

That *overloads may be handled* without risking failure of the clutch;

That the clutch will have *a much longer life* in service than with plain bearings;

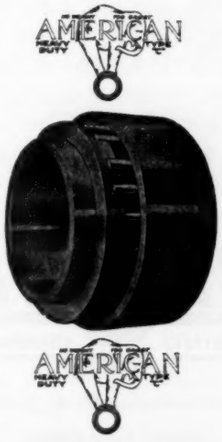
That there will *not* be nearly the attention and repairs required as there would be with plain bearings;

That in stopping, starting, reversing, slowing-down, —in fact, in every phase of operation,—the clutch will be a *surer, stronger* and *safer* clutch than one which does *not* depend on **Heavy Duty** *American Roller Bearings.*

In the design and construction of *Reverse Clutches* for well drilling, *better engineering* is having its inning. The vital center of most clutch troubles— the bearings—are now getting the attention they deserve. The demand for improved clutch operation, and the increased responsibilities long since imposed by deeper drilling *is forcing plain bearings into the discard.*

More progressive manufacturers are meeting, and preparing to meet, the *real and important need for better clutches* for this work. Any manufacturer can make the important first step from plain to Roller Bearings *without radical change of design.* The number and position of the roller bearings will vary, depending upon the size of the clutch.

The American Roller Bearing is the *logical choice* for oil field clutches and it is logical, also, to make use of our experience as *the largest manufacturer of roller bearings exclusively built for industrial, heavy-duty service.* We will be glad to have the opportunity to make suggestions and recommendations, on any bearing question in which you may be interested. Blue prints should be sent along with inquiry.



Largest Manufacturers of Roller Bearings for Industrial Purposes!

American Roller Bearing Co. **Pittsburgh, Pennsylvania**

AMERICAN HEAVY DUTY TYPE "C" ROLLER BEARINGS

BAKER

Baker Cement Basket.

CEMENTING TOOLS INSURE A PERFECT JOB

Safe, certain and economical cementing jobs are practically assured with Baker Cementing Tools. Developed with a background of long experience in oil field work and its requirements, they have proved themselves superior in performance, efficiency and dependability under all conditions.

The cementing tools illustrated herewith have achieved prominence in cementing under the most rebellious conditions. The Dump Bailer has a sliding sleeve which comprises the lock and trip features. There are no springs, latches or other contrivances to become disordered.

Baker Dump Bailer.

Baker Sure Shot Cement Plug.

The Sure Shot Cement Plug is used when the cement is lowered with the Dump Bailer. It forces all the cement outside the casing and handles the cementing job quickly and dependably.

The Baker Cement Basket has many advantageous features, including the important one of correct valve design and construction, which permits adequate gas control and escape without disturbing the cement on the outside of the casing. The valve can't break or fail. The basket eliminates one string of casing and is indispensable for cementing of intermediate water.

BAKER CASING SHOE COMPANY

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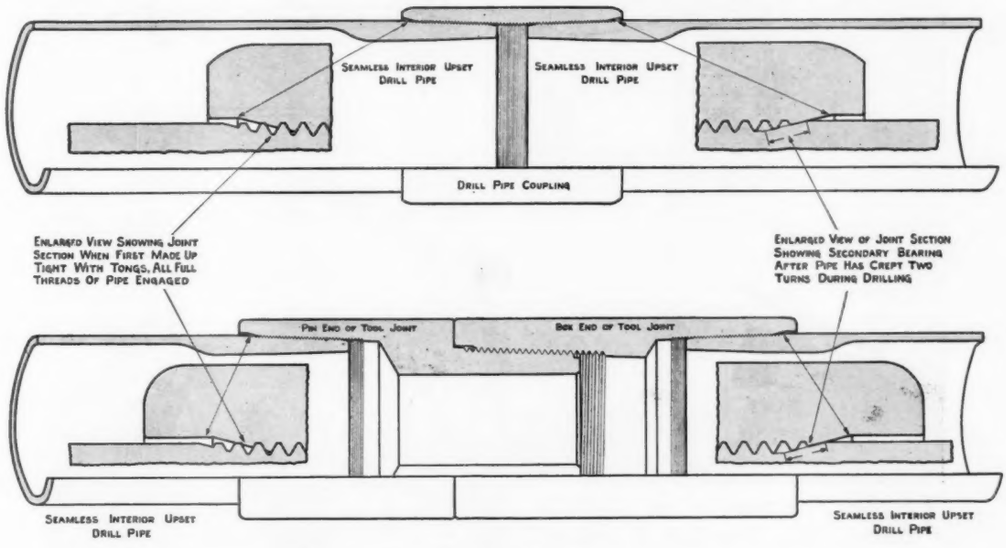
"NATIONAL"

A.P.I.

Seamless Interior Upset Drill Pipe


Seamless Interior Upset Drill Pipe
Seamless Interior Upset Drill Pipe
Drill Pipe Coupling
Enlarged View Showing Joint Section When First Made Up Tight With Tongs. All Full Threads Of Pipe Engaged
Enlarged View of Joint Section Showing Secondary Bearing After Pipe Has Crept Two Turns During Drilling
Pin End of Tool Joint
Box End of Tool Joint
Seamless Interior Upset Drill Pipe
Seamless Interior Upset Drill Pipe

Special Features

1. *Rounded Form of Thread*
2. *Thickest Part of Upset Under Last Full Thread*
3. *All Threads of Pipe Fully Engage*
4. *Angle of Shoulder Threads Forms Secondary Bearing*
5. *Entering Threads on Pipe and Coupling Same Angle*

These special features when worked in combination with properly designed tool joints make the most efficient drill string it is possible to secure at this time. To obtain the maximum service from this pipe, the operator should use tool joints designed to give the same fit as the couplings. These tool joints should have vanishing threads at the bottom of the recess to correspond to the angle of vanish on the shoulder of the pipe, and the tool joints should be tapped large enough to permit them to screw up by power until all full threads on the pipe are engaged by the threads of the tool joint.

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Driller to Pumper without loss of production!

IF your derrick is an IDECO there's little time lost in changing over from driller to pumper. When the well comes in and you know oil is there a small crew can erect *inside the heavy drilling rig* and on the *same base*, a light, inexpensive IDECO pumping derrick—what's more they can put it up without interfering with operations. Then it is only a matter of a few minutes to change your lines and pumping continues without interruption. After that the drilling derrick is dismantled and moved on to the next job.

That's Speed! That's Economy! That's IDECO!

INTERNATIONAL STEEL IDECO DERRICKS
(GALVANIZED)

THE INTERNATIONAL DERRICK & EQUIPMENT CO.

The largest company devoted exclusively to the manufacture of steel (galvanized) equipment for the oil, gas and artesian industries.

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Export Representation: 30 Church Street, New York City, Columbus, Ohio, Los Angeles and San Francisco, Cal.

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PRODUCING REFINING MARKETING

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Refinery Section Starts on Page 150

No Relief from Big Production in Sight

Highest daily average estimated production in 1926, week ended Dec. 25, 2,385,139 bbls. Lowest in 1926, January 30, 1,915,960 bbls.

Developments in Oklahoma Indicate Continued Large Output While California and West Texas Are Still Active

By Andrew M. Rowley

Highest daily average estimated light oil production in 1926, week ended Dec. 25, 1,797,349 bbls. Lowest in 1926, Jan. 30, 1,371,600 bbls.

Developments in the various active oil fields of the country during the past week further emphasized the fact the petroleum industry cannot reasonably expect any material decline in production for quite some time to come. While the Seminole Pool proper (9-6) in Oklahoma has begun to show evidences of a slight decline, a new well was completed 2 miles east of the Earlsboro Pool in that area which started at the rate of 200 barrels an hour, opening considerable new territory. South of the Seminole Pool, that section of the Greater Seminole Field known as the Bowlegs Pool, is steadily gaining prominence and all indications point to a big production, one estimate placing the output by the end of this month for that section alone at 75,000 barrels daily.

Production of crude oil in the United States for the 12 months ending March 31 was approximately 817,339,000 barrels and if the recent rate of output continues until the close of June, the production for the 12 months ending June 30 will be approximately 855,000,000 barrels.

A significant feature of the general situation is the financing operations of a number of the larger companies, indicating plans for the storage of large quantities of crude. Low prices for crude and resultant low prices for refined products confront the industry with serious problems in connection with efforts to operate profitably.

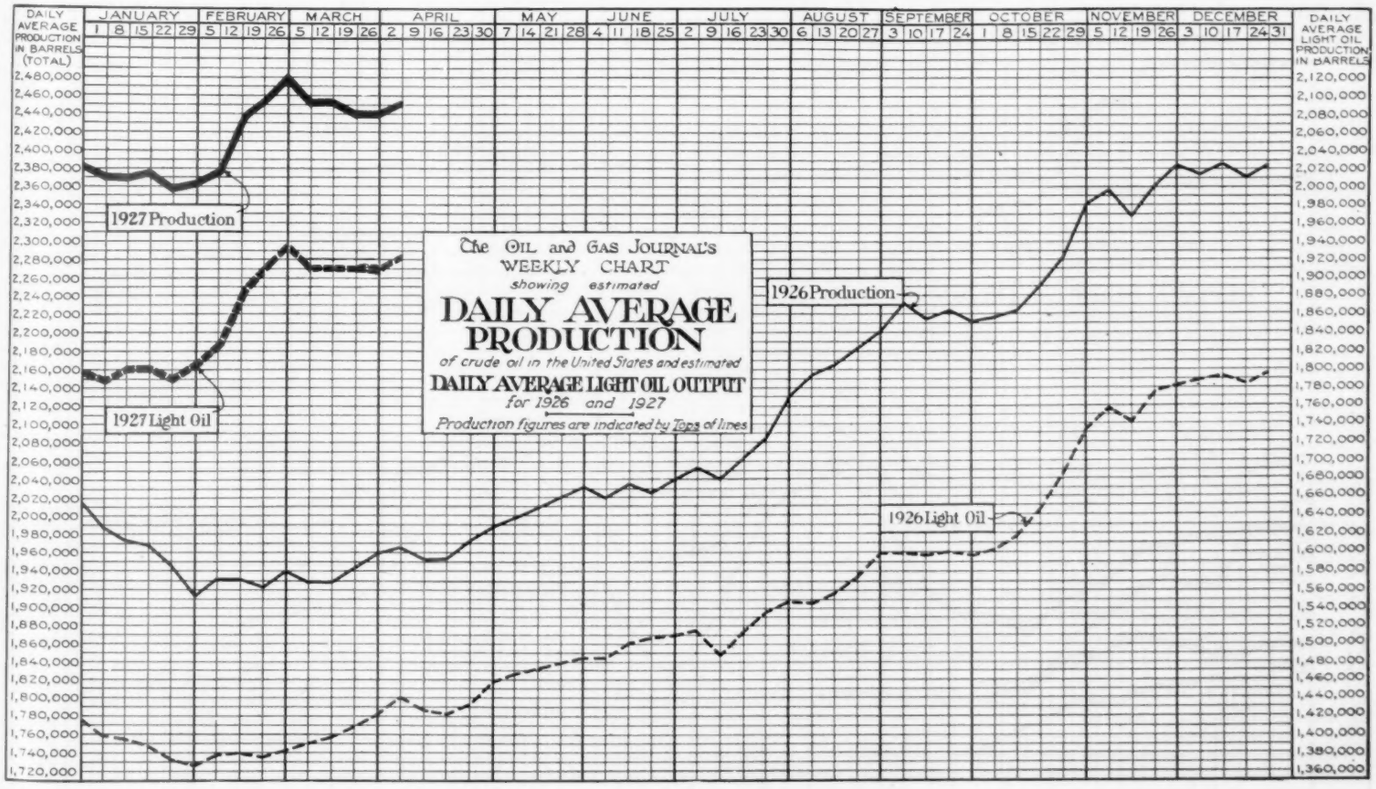
Oklahoma, California and North and West Texas are areas in which great activity continues and these sections may be depended upon to provide the bulk of production for the country for some time to come. While efforts have been made to curtail unnecessary drilling, the completion of new wells means offset drilling and increases, rather than declines, in output may be expected from these areas during the near future.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended April 2, and a comparison with the previous week follows:

	Apr. 2		Mar. 26	
Oklahoma—	Light	Heavy	Light	Heavy
Tonkawa	23,070	.....	24,235	.....
Burbank	45,480	.....	45,915	.....
Other Osage Fields	35,240	.....	35,210	.....
Cushing and Shamrock	21,225	.....	21,205	.....
Bristow and Eastern Bristow	27,205	.....	27,285	.....
Cromwell	13,380	.....	13,440	.....
Garber	17,315	.....	17,615	.....
Blackwell-Braman	13,840	.....	14,285	.....
Seminole	331,210	.....	318,210	.....
Wewoka	18,415	.....	17,670	.....
Northern Miscellaneous	111,940	.....	110,035	.....
Southern Fields	66,565	.....	66,690	.....
Total Oklahoma	724,885	.....	711,795	.....
North Louisiana	40,315	11,000	40,490	10,610
Arkansas	25,680	98,230	25,775	98,230
North Central and West Texas	259,177	.....	251,300	.....
Texas Panhandle	117,800	.....	120,580	.....
East Central Texas	39,235	.....	39,722	.....
Kansas	116,340	.....	115,710	.....
Total Mid-Continent Area	1,323,432	109,230	1,305,372	108,840
Gulf Coast	.....	149,345	.....	153,837
Southwest Texas	.....	38,830	.....	37,220
Eastern	104,500	.....	105,000	.....
Rocky Mountain Area	85,885	.....	88,310	.....
California—				
Santa Fe Springs	44,000	.....	44,500	.....
Long Beach	92,000	.....	92,500	.....
Torrance	6,000	19,000	6,000	19,000
Huntington Beach	74,000	.....	75,000	.....
Dominguez	18,000	.....	18,000	.....
Rosecrans	11,500	.....	11,500	.....
Inglewood	24,500	13,000	24,500	13,500
Ventura Avenue	50,000	.....	49,500	.....
Seal Beach	32,000	.....	32,500	.....
Remainder of State	59,000	199,000	59,000	200,000
Total California	411,000	231,000	413,000	232,500
Total United States	1,924,817	528,405	1,911,682	532,397
Grand Total		2,453,222		2,444,079

Total Increase, 9,143 Bbls.; Light Oil Increase, 13,135 Bbls.



Crude Situation Dominates Market

Fear of Additional Mid-Continent Reduction Due to California Cut Factor in Oklahoma Gasoline Prices. Other Products Weak

By C. O. Wilson

Uncertainty regarding the Mid-Continent crude market, a development of the general price reductions in the California fields, effective April 1, has dominated the Oklahoma (Group 3) refined market during the past few days. The fear of another reduction in Mid-Continent crude schedules was held responsible for a sluggish gasoline demand since the first of the month which has made it difficult for refiners to maintain the prices which were effective at the end of March.

The present gasoline market situation is practically a duplicate of that which invariably arises when, for any reason, the trade has reason to feel that a downward adjustment in crude schedules is about to take place. Buyers, who sense the situation as quickly as do the sellers, have reduced their gasoline purchases to a minimum expecting to secure important price concessions just as soon as the lower crude prices become effective. Should the crude reduction not materialize in a few days the crude situation will cease to be a factor and the gasoline market will rise or fall based entirely on the situation which exists in regard to the supply and demand for that product.

The drastic reduction in California crude schedules with discussions as to the probable effect on the general crude and refined market structures will be found elsewhere in this issue. It is sufficient to state here that while the low California prices will unquestionably bring some additional competition to the eastern areas which will indirectly affect the Mid-Continent refiner, no flood of west coast gasoline as in 1923 is to be expected.

Government reports do not show any large excess supplies of gasoline in California at present and faced with high tanker rates and low-priced competition in the eastern refining centers it is expected that the west coast refiners will endeavor to keep their gasoline output as nearly as possible in line with the demands in their own marketing territory.

Expectation of Crude Cut

Due to this situation, there are many in touch with the Mid-Continent who believe that the importance of California has been magnified, so far as the Mid-Continent market is concerned. They state that a crude reduction in the Mid-Continent Field, should it materialize, has already been largely discounted, so far as the gasoline market is concerned. At least one refiner is hoping that the reduction comes immediate'y, as he believes that the "expectation of the cut is a more bearish factor in the gasoline market than the realization will be."

This seller and others believe that as soon as the fear of possible crude reductions is removed from the market picture enough buying will develop so that gasoline will quickly recover any loss in price. Quite a number of buyers failed to make any purchases two weeks ago when for a couple of days 58-60 U. S. Motor gasoline was available as low as 6 cents. These buyers were waiting for prices below 6 cents before buying for storage.

These same buyers are now hoping that gasolines will be forced down to this general level again so they can make the purchases they failed to make when the first opportunity presented itself. Predictions that another crude reduction in the Mid-Continent Field will force gasoline below a 6-cent level for the 58-60 Motor gasoline through April are not generally credited.

Other Products Down

Probably the most important development in the refined market, which will tend to check any substantial reductions in gasoline prices, lies in the declining

(Continued on Page 168)

REFINED MARKET BAROMETER

The outstanding development of the past week in its effect on refined markets was the reduction in California crude price schedules. Although the reduction had already been largely discounted, so far as the California market was concerned, the drastic cut brought a feeling of uncertainty in the Middle West and eastern refined markets which was reflected in important price reductions on several products. The expectation that additional crude price reductions may develop in other fields tended to slow up gasoline buying and brought eastern tank car prices to a new low level for the year. Scattered gasoline price reductions were reported in other areas. Kerosene price reductions materialized in both export and domestic markets. Gas oils again slumped rapidly at interior refining centers, closely followed by fuel oils and distillates. At coastal points prices were reported firm on these products. Natural gasolines continue weak. Scattered price reductions became effective on bright stocks and cylinder stocks. Wax prices continued to slump.

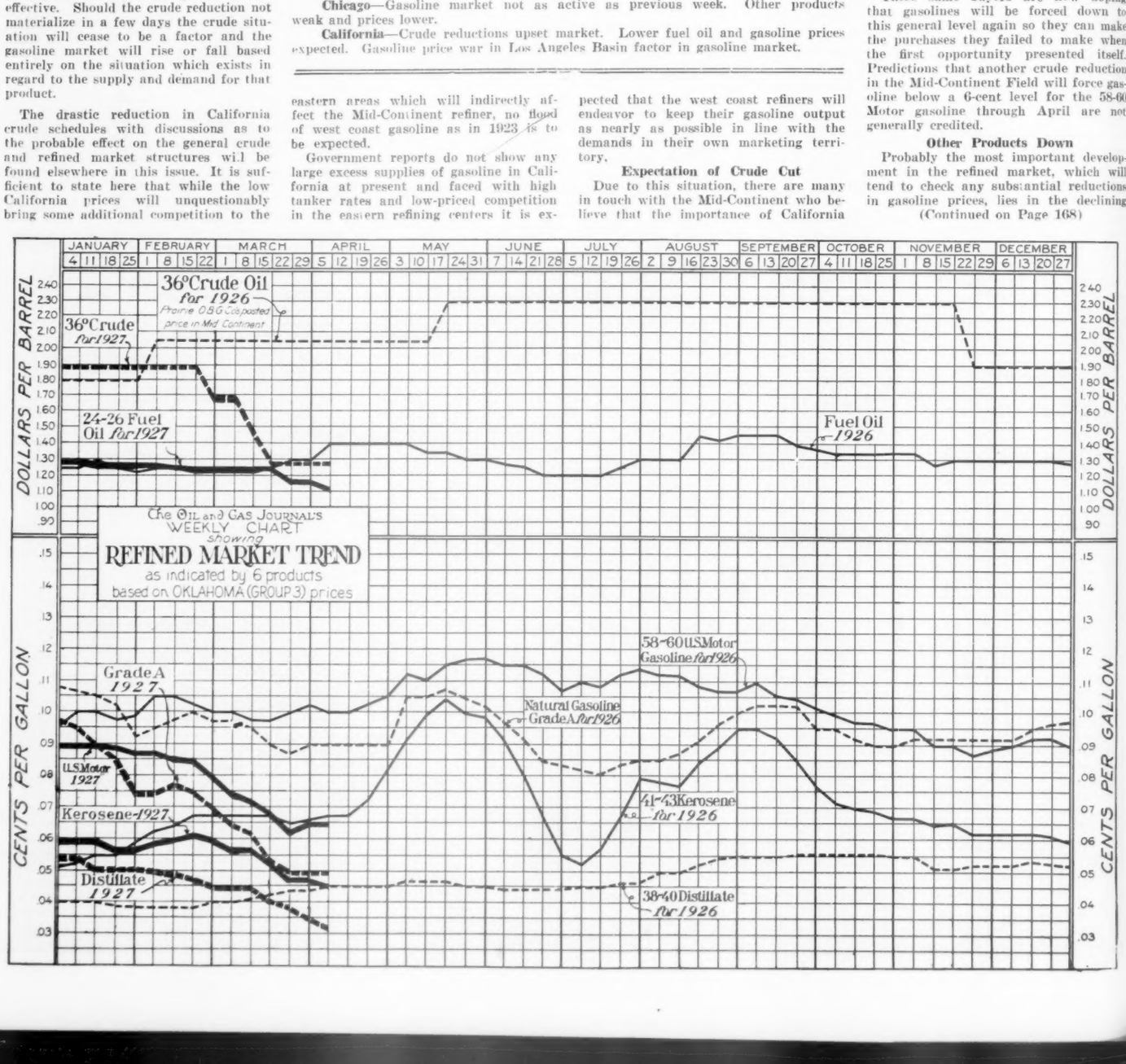
Mid-Continent—Gasoline prices fairly firm, although demand not active as previous week. General price reductions in fuel oils, gas oils, distillates and kerosenes. Lub oils firm. Wax weak.

Atlantic Seaboard—Kerosene export prices in cases reduced half a cent, with domestic market weaker. Gasoline tank car prices at Bayonne, N. J., lower. Wax and petroleum weak. Export market sluggish.

Pennsylvania—Gasoline prices firmer with better movement reported. Kerosenes weak. No demand for wax. No general changes in lubs.

Chicago—Gasoline market not as active as previous week. Other products weak and prices lower.

California—Crude reductions upset market. Lower fuel oil and gasoline prices expected. Gasoline price war in Los Angeles Basin factor in gasoline market.



Effect of California Cut on Market

Could Compete With Mid-Continent If Tankers Were Available. Seal Beach Situation Factor

By L. P. Stockman

LOS ANGELES, Calif., Apr. 4.—It is the general consensus of opinion that the California crude oil price cuts effective April 1 have weakened the refined oil market considerably, although most of the larger refiners are expected to maintain present quotations on refined oils at least for the time being. No further reduction in gasoline prices is anticipated in the immediate future due to the already limited margin of profit and the desire of marketers to stabilize conditions in the hope of staying out of the red for the rest of the year.

Gasoline is retailing at 14½ cents per gallon in Los Angeles territory and it is practically obligatory on marketers to maintain at least this price as any further reductions will result in severe losses. Recent crude cuts have helped this condition somewhat. With crude at $1 per barrel few refiners can do more than break even. By taking the retail service station price in Los Angeles as an example it will be seen that the present returns are far too low. The first deduction to come off this 14½-cent figure is the 2-cent gasoline tax. The balance—12½ cents per gallon—represents the cost to the consumer exclusive of tax. The major refiners have established a differential of 4 cents per gallon to the reseller. This reduces the refiner's net return to 8½ cents per gallon. Another cent or two must be deducted for delivery charges and overhead expense. The above deductions have brought the Los Angeles price down to between 6 and 7 cents per gallon. This is a fairly representative figure and refiners could at least break even if this rate was uniform. The chief difficulty, however, lies in the fact that very few refiners are adhering strictly to the 4-cent differential. Some recent contracts were made with 5 and 6-cent differentials. This is one of the principal reasons why the marketing companies are particularly desirous of maintaining at least present prices.

E. L. Doheny, in his announcement of the last gasoline cut made by the Pan American, stated it is "not the result of economic conditions but of the fierce competition for gallonage."

Seal Beach Danger

Anticipated heavy production of the Seal Beach Field resulting from development work in the town lot area will undoubtedly weaken the local market still further within the next 60 days and due to the fact that smaller refiners are already retailing gasoline at from 12 to 14 cents per gallon it is quite possible that bootleggers will be dispensing motor fuel around 9 and 10 cents per gallon during the summer months. It is problematical whether major refiners can maintain present quotations in Los Angeles territory unless Seal Beach crude is prevented from reaching the smaller independents. Prices outside of Los Angeles territory will probably remain stable due to distance from the source of disturbance.

California producers would undoubtedly be able to compete satisfactorily with Mid-Continent operators if sufficient tankers were available for transportation of crude and refined oils to foreign and Atlantic ports. The tanker shortage, however, precludes shipments of more than a small portion of the surplus anticipated as a result of work at Seal Beach.

Long Beach, Huntington Beach, or Seal Beach crude can now be delivered f.o.b. tankers, Los Angeles Habor, at approximately $1 per barrel. This permits the laying down of this crude on the Atlantic Seaboard at approximately $2 per barrel. Companies having their own bottoms, of course, could probably shade this figure. Gasoline with charter rates averaging around $1.25 per barrel can be delivered on the East Coast around 10 or 11 cents per gallon.

Depends on Tankers

The possibility of disposing of surplus production of both crude and gasoline on the Atlantic Seaboard during the next three or four months depends almost entirely on future charter rates and the number of bottoms available. No appreciable relief is anticipated in the immediate future from this source and it looks as though California marketers will be obliged to store a considerable part of the surplus production in California. Unless the tanker situation improves most California pipe line companies will go slow on commitments at Seal Beach and if unable to ship any quantity out it would not be surprising if this crude was cut another 25 cents per barrel to permit the construction of additional storage or the placing of a maximum quantity to be taken on each contract with payment for part of delivery and charge on balance for storage.

New York View

By L. M. Fanning

New York Bureau, The Oil and Gas Journal.

NEW YORK, Apr. 4.—Reductions in the price of California crude and gasoline are regarded in the East as theoretically putting California back in competition with Mid-Continent and foreign sources of supplies. Due to Mid-Continent crude cuts and notably to high tanker charter rates California crude and products which are the last to reflect overproduction conditions by price reductions were more or less eliminated from the eastern markets and the trend has been for California to resume its isolated position of several years ago.

The movement of California oils eastward has continued heavy because of contracts made late in the year but purchases on recently obtaining price levels by eastern refiners have not been possible because of differentials in favor of Mid-Continent crude and products. It is still believed by leading refiners that there will be no important increase in the movement because of the shortage of tankers and the high charter rates. Another factor against an increase in movement is the curtailment of cracking operations by some of the eastern plants. The big increase in the California movement last year was represented by fuel oil and gas oil used for cracking stock and it is not believed that refiners will make further commitments as they are now storing a large part of the products being delivered from the Pacific Coast.

Fear Further Cut

It is believed, however, the reductions in California prices present a new menace in the general oil situation, particularly in view of prospects of increased crude production in California and gains in gasoline production there made possible by the inauguration of cracking. One eastern official expresses the view that the better interests of California and the general industry would be served if California would take steps to curtail both in field production and in gasoline output instead of piling up a surplus for disposal in outside markets.

Until the cut in California prices came it was hoped in the East that steps would be taken in California to keep production down. This may be accomplished somewhat by price reductions but fear is expressed that further cuts might throw California products again in the general markets. There has been a slight easing in tanker rates recently but no relief from the present shortage is expected until later in the year.

CALIFORNIA CRUDE PRICES BEFORE AND AFTER CHANGE APRIL 1, 1927
*Standard Oil Co.-Union Oil Co.

Gravity—	Seal Beach Fullerton Long Beach Hunt. Beach Richfield Rosecrans-Dominguez Torrance-Inglewood 1		Whittier La Habra Montebello 2		Kern River Newhall-McKittrick Midway-Sunset Elk Hills Lost Hills Belridge 3		Coyote 4		Santa Fe Springs 5		Coalinga 6		Wheeler Ridge 7		Santa Maria Ventura Salt Lake 8	
	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New
14°	.85	.85	.85	.85	.75	.75	.85	.85	....	....	.75	.75	.75	.75	.85	.85
15°	.87	.85	.85	.85	.75	.75	.85	.85	....	....	.75	.75	.75	.75	.85	.85
16°	.90	.85	.85	.85	.75	.75	.85	.85	....	....	.75	.75	.75	.75	.85	.85
17°	.94	.85	.85	.85	.75	.75	.85	.85	....	....	.75	.75	.75	.75	.85	.85
18°	.98	.85	.86	.85	.75	.75	.86	.85	....	....	.75	.75	.75	.75	.85	.85
19°	1.04	.85	.87	.85	.75	.75	.87	.85	....	....	.75	.75	.75	.75	.85	.85
20°	1.10	.85	.89	.85	.82	.77	.90	.85	....	....	.78	.76	.78	.76	.90	.85
21°	1.16	.86	.91	.85	.90	.79	.98	.86	.91	.85	.86	.77	.81	.77	.97	.85
22°	1.22	.87	.94	.85	1.00	.81	1.06	.87	.94	.85	.93	.78	.85	.78	1.04	.85
23°	1.28	.88	.97	.85	1.11	.83	1.14	.88	.97	.85	1.00	.79	.89	.79	1.11	.85
24°	1.34	.89	1.01	.85	1.22	.85	1.22	.89	1.02	.85	1.07	.80	.93	.80	1.18	.85
25°	1.40	.90	1.06	.86	1.33	.87	1.30	.90	1.08	.86	1.14	.81	.97	.87	1.25	.86
26°	1.46	.92	1.09	.87	1.44	.89	1.33	.91	1.16	.87	1.21	.83	1.01	.82	1.32	.87
27°	1.52	.94	1.13	.88	1.55	.91	1.46	.92	1.24	.88	1.28	.85	1.05	.83	1.39	.88
28°	1.58	.96	1.17	.89	1.66	.93	1.54	.93	1.32	.89	1.35	.87	....	....	1.46	.89
29°	1.64	.98	1.21	.90	1.77	.96	1.62	.94	1.40	.91	1.42	.89	....	....	1.53	.91
30°	1.70	1.00	1.25	.91	1.88	.99	1.70	.95	1.48	.93	1.49	.91	....	....	1.60	.93
31°	1.76	1.03	....	....	1.99	1.02	....	....	1.60	.95	1.56	.93	....	....	1.67	.95
32°	1.84	1.06	....	....	2.10	1.05	....	....	1.72	.97	1.63	.95	....	....	1.78	.97
33°	1.92	1.09	....	....	2.21	1.08	....	....	1.84	.99	1.70	.97	....	....	1.79	.99
34°	2.00	1.12	....	....	2.32	1.11	....	....	1.96	1.01	1.77	.99	....	....	1.85	1.01
35°	2.08	1.15	....	....	....	....	....	....	2.08	1.03	1.84	1.01	....	....	1.92	1.03
36°	2.16	1.18	....	....	....	....	....	....	2.16	1.06	....	....	....	....	....	....
37°	2.24	1.21	....	....	....	....	....	....	2.24	1.09	....	....	....	....	....	....
38°	2.34	1.24	....	....	....	....	....	....	2.34	1.12	....	....	....	....	....	....
39°	2.44	1.27	....	....	....	....	....	....	2.44	1.15	....	....	....	....	....	....
40°	2.54	1.30	....	....	....	....	....	....	....	....	....	....	....	....	....	....
41°	2.64	1.33	....	....	....	....	....	....	....	....	....	....	....	....	....	....
42°	2.74	1.36	....	....	....	....	....	....	....	....	....	....	....	....	....	....

*Column 1.—Long Beach, Beal Beach and Huntington Beach crudes, 14 to 32 degrees, inclusive; Richfield and Fullerton, 14 to 30 degrees; Torrance and Inglewood, 14 to 28 degrees; Dominguez, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.
Column 2—Whittier crude, 14 to 22 degrees; Montebello, 14 to 30 degrees.
Column 3—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 33 degrees; Lost Hills and Belridge, 14 to 34 degrees.
Column 8—Salt Lake, 14 to 18 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura, 14 to 35 degrees. Posted only by Union Oil Co.

Institute to Hold Annual Meeting in Chicago, Dec. 6-8

NEW YORK, Apr. 5.—The eighth annual meeting of the American Petroleum Institute will be held at the Stevens Hotel, Chicago, December 6, 7 and 8.

Prairie Oil & Gas Co. Is Preparing to Store Large Volume of Crude

Because of the tremendous production of oil in the territory covered by the lines of the Prairie Pipe Line Co., the Prairie Oil & Gas Co., the largest purchaser of crude oil in the industry, has been making preparations for taking care of the extra demands made upon it as a purchaser as well as producer.

In the first quarter of this year the company has built, contracted for, purchased and rented steel tankage to the amount of 9,400,000 bbls. in Kansas, Oklahoma and Texas. The storage is scattered at advantageous points. At its big Caney, Kans, tank farm the company has erected fifteen 80,000-bbl and ten 55,000-bbl. tanks and it has provided room for 2,500,000 bbls. of additional crude in the Mexia Field in Texas. Tanks erected in the Seminole region and bought and rented elsewhere make up the balance of the new room for oil provided by the Prairie company. The cost of providing storage and purchasing the oil to fill it (aside from the company's own large production), will run high into the millions, and it is reported that the company expects to invest around $25,000,000 in crude oil and storage facilities.

Prairie's Big Business

These are busy days for the Prairie Pipe Line Co. In the first three months of this year its crude oil shipments north and east from Texas, Oklahoma and Kansas have been 15,036,709.52 bbls. In the first three months of 1926 the same company's shipments were 12,846,832.72 bbls., showing a gain in the first quarter of this year of 2,189,876.80 bbls.

Notwithstanding the big business of the Prairie Pipe Line Co., its chief customer, the Prairie Oil & Gas Co. is storing crude oil daily. Its production and purchases are considerably in excess of its sales, which makes necessary its storage program and its plans for financing the program. There is no present sign of a decided falling off in the pro-

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No Relief from Big Production in Sight

Highest daily average estimated production in 1926, week ended Dec. 25, 2,385,139 bbls. Lowest in 1926, January 30, 1,915,960 bbls.

Developments in Oklahoma Indicate Continued Large Output While California and West Texas Are Still Active

By Andrew M. Rowley

Highest daily average estimated light oil production in 1926, week ended Dec. 25, 1,797,349 bbls. Lowest in 1926, Jan. 30, 1,371,600 bbls.

Developments in the various active oil fields of the country during the past week further emphasized the fact the petroleum industry cannot reasonably expect any material decline in production for quite some time to come. While the Seminole Pool proper (9-6) in Oklahoma has begun to show evidences of a slight decline, a new well was completed 2 miles east of the Earlsboro Pool in that area which started at the rate of 200 barrels an hour, opening considerable new territory. South of the Seminole Pool, that section of the Greater Seminole Field known as the Bowlegs Pool, is steadily gaining prominence and all indications point to a big production, one estimate placing the output by the end of this month for that section alone at 75,000 barrels daily.

Production of crude oil in the United States for the 12 months ending March 31 was approximately 817,339,000 barrels and if the recent rate of output continues until the close of June, the production for the 12 months ending June 30 will be approximately 855,000,000 barrels.

A significant feature of the general situation is the financing operations of a number of the larger companies, indicating plans for the storage of large quantities of crude. Low prices for crude and resultant low prices for refined products confront the industry with serious problems in connection with efforts to operate profitably.

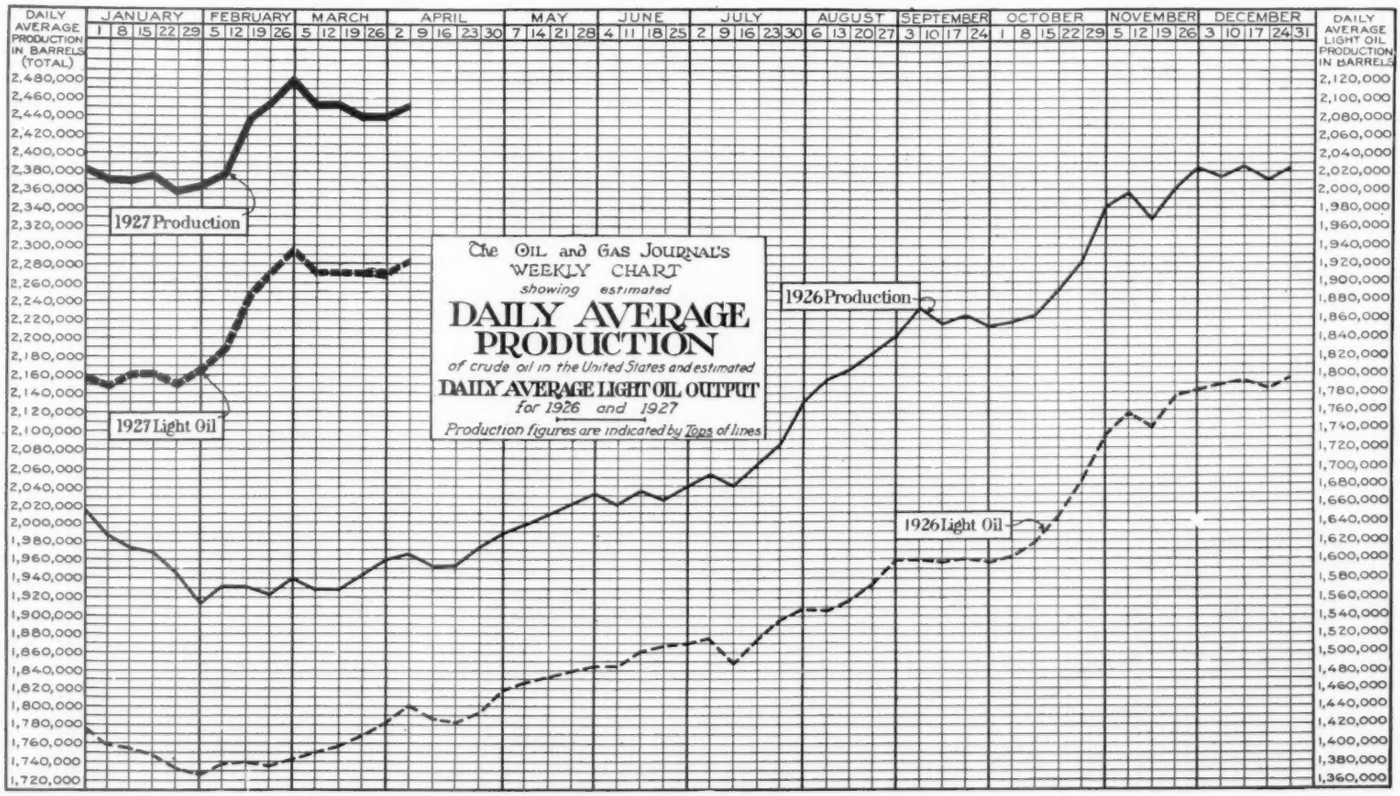
Oklahoma, California and North and West Texas are areas in which great activity continues and these sections may be depended upon to provide the bulk of production for the country for some time to come. While efforts have been made to curtail unnecessary drilling, the completion of new wells means offset drilling and increases, rather than declines, in output may be expected from these areas during the near future.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended April 2, and a comparison with the previous week follows:

	Apr. 2		Mar. 26	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	23,070	.....	24,235	.....
Burbank	45,480	.....	45,915	.....
Other Osage Fields	35,240	.....	35,210	.....
Cushing and Shamrock	21,225	.....	21,205	.....
Bristow and Eastern Bristow	27,205	.....	27,285	.....
Cromwell	13,380	.....	13,440	.....
Garber	17,315	.....	17,615	.....
Blackwell-Braman	13,840	.....	14,285	.....
Seminole	331,210	.....	318,210	.....
Wewoka	18,415	.....	17,670	.....
Northern Miscellaneous	111,940	.....	110,035	.....
Southern Fields	66,565	.....	66,690	.....
Total Oklahoma	724,885	.....	711,795	.....
North Louisiana	40,315	11,000	40,490	10,610
Arkansas	25,680	98,230	25,775	98,230
North Central and West Texas	259,177	.....	251,300	.....
Texas Panhandle	117,800	.....	120,580	.....
East Central Texas	39,235	.....	39,722	.....
Kansas	116,340	.....	115,710	.....
Total Mid-Continent Area	1,323,432	109,230	1,305,372	108,840
Gulf Coast	.....	149,345	.....	153,837
Southwest Texas	.....	38,830	.....	37,220
Eastern	104,500	.....	105,000	.....
Rocky Mountain Area	85,885	.....	88,310	.....
California—				
Santa Fe Springs	44,000	.....	44,500	.....
Long Beach	92,000	.....	92,500	.....
Torrance	6,000	19,000	6,000	19,000
Huntington Beach	74,000	.....	75,000	.....
Dominguez	18,000	.....	18,000	.....
Rosecrans	11,500	.....	11,500	.....
Inglewood	24,500	13,000	24,500	13,500
Ventura Avenue	50,000	.....	49,500	.....
Seal Beach	32,000	.....	32,500	.....
Remainder of State	59,000	199,000	59,000	200,000
Total California	411,000	231,000	413,000	232,500
Total United States	1,924,817	528,405	1,911,682	532,397
Grand Total		2,453,222		2,444,079

Total Increase, 9,143 Bbls.; Light Oil Increase, 13,135 Bbls.



Crude Situation Dominates Market

Fear of Additional Mid-Continent Reduction Due to California Cut Factor in Oklahoma Gasoline Prices. Other Products Weak

By C. O. Willson

Uncertainty regarding the Mid-Continent crude market, a development of the general price reductions in the California fields, effective April 1, has dominated the Oklahoma (Group 3) refined market during the past few days. The fear of another reduction in Mid-Continent crude schedules was held responsible for a sluggish gasoline demand since the first of the month which has made it difficult for refiners to maintain the prices which were effective at the end of March.

The present gasoline market situation is practically a duplicate of that which invariably arises when, for any reason, the trade has reason to feel that a downward adjustment in crude schedules is about to take place. Buyers, who sense the situation as quickly as do the sellers, have reduced their gasoline purchases to a minimum expecting to secure important price concessions just as soon as the lower crude prices become effective. Should the crude reduction not materialize in a few days the crude situation will cease to be a factor and the gasoline market will rise or fall based entirely on the situation which exists in regard to the supply and demand for that product.

The drastic reduction in California crude schedules with discussions as to the probable effect on the general crude and refined market structures will be found elsewhere in this issue. It is sufficient to state here that while the low California prices will unquestionably bring some additional competition to the eastern areas which will indirectly affect the Mid-Continent refiner, no flood of west coast gasoline as in 1923 is to be expected.

Government reports do not show any large excess supplies of gasoline in California at present and faced with high tanker rates and low-priced competition in the eastern refining centers it is expected that the west coast refiners will endeavor to keep their gasoline output as nearly as possible in line with the demands in their own marketing territory.

Expectation of Crude Cut

Due to this situation, there are many in touch with the Mid-Continent who believe that the importance of California has been magnified, so far as the Mid-Continent market is concerned. They state that a crude reduction in the Mid-Continent Field, should it materialize, has already been largely discounted, so far as the gasoline market is concerned. At least one refiner is hoping that the reduction comes immediately, as he believes that the "expectation of the cut is a more bearish factor in the gasoline market than the realization will be."

This seller and others believe that as soon as the fear of possible crude reductions is removed from the market picture enough buying will develop so that gasoline will quickly recover any loss in price. Quite a number of buyers failed to make any purchases two weeks ago when for a couple of days 58-60 U. S. Motor gasoline was available as low as 6 cents. These buyers were waiting for prices below 6 cents before buying for storage.

These same buyers are now hoping that gasolines will be forced down to this general level again so they can make the purchases they failed to make when the first opportunity presented itself. Predictions that another crude reduction in the Mid-Continent Field will force gasoline below a 6-cent level for the 58-60 Motor gasoline through April are not generally credited.

Other Products Down

Probably the most important development in the refined market, which will tend to check any substantial reductions in gasoline prices, lies in the declining

(Continued on Page 168)

REFINED MARKET BAROMETER

The outstanding development of the past week in its effect on refined markets was the reduction in California crude price schedules. Although the reduction had already been largely discounted, so far as the California market was concerned, the drastic cut brought a feeling of uncertainty in the Middle West and eastern refined markets which was reflected in important price reductions on several products. The expectation that additional crude price reductions may develop in other fields tended to slow up gasoline buying and brought eastern tank car prices to a new low level for the year. Scattered gasoline price reductions were reported in other areas. Kerosene price reductions materialized in both export and domestic markets. Gas oils again slumped rapidly at interior refining centers, closely followed by fuel oils and distillates. At coastal points prices were reported firm on these products. Natural gasolines continue weak. Scattered price reductions became effective on bright stocks and cylinder stocks. Wax prices continued to slump.

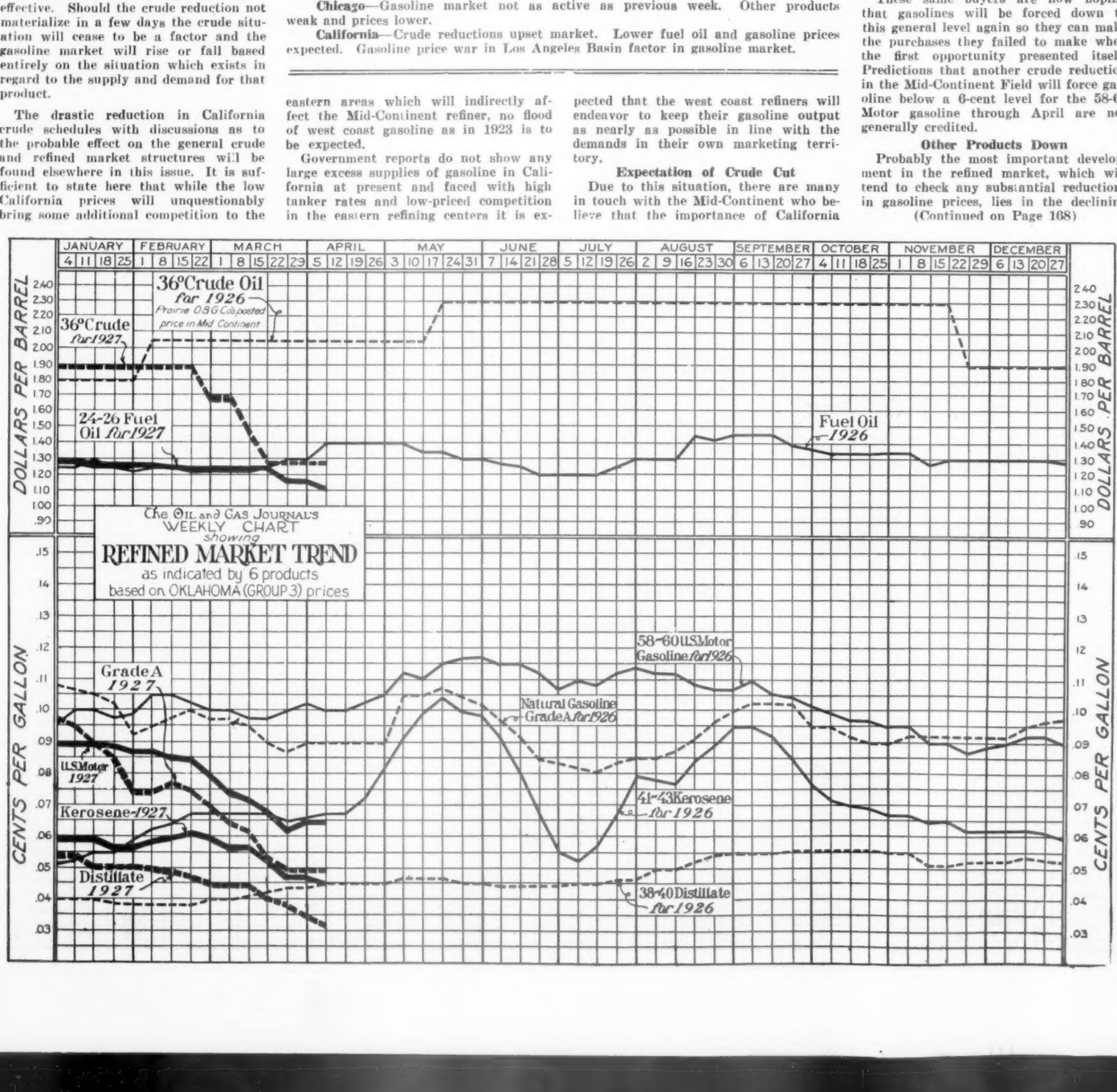
Mid-Continent—Gasoline prices fairly firm, although demand not active as previous week. General price reductions in fuel oils, gas oils, distillates and kerosenes. Lub oils firm. Wax weak.

Atlantic Seaboard—Kerosene export prices in cases reduced half a cent, with domestic market weaker. Gasoline tank car prices at Bayonne, N. J., lower. Wax and petroleum weak. Export market sluggish.

Pennsylvania—Gasoline prices firmer with better movement reported. Kerosenes weak. No demand for wax. No general changes in lubs.

Chicago—Gasoline market not as active as previous week. Other products weak and prices lower.

California—Crude reductions upset market. Lower fuel oil and gasoline prices expected. Gasoline price war in Los Angeles Basin factor in gasoline market.



Effect of California Cut on Market

Could Compete With Mid-Continent If Tankers Were Available. Seal Beach Situation Factor

By L. P. Stockman

LOS ANGELES, Calif., Apr. 4.—It is the general consensus of opinion that the California crude oil price cuts effective April 1 have weakened the refined oil market considerably, although most of the larger refiners are expected to maintain present quotations on refined oils at least for the time being. No further reduction in gasoline prices is anticipated in the immediate future due to the already limited margin of profit and the desire of marketers to stabilize conditions in the hope of staying out of the red for the rest of the year.

Gasoline is retailing at 14½ cents per gallon in Los Angeles territory and it is practically obligatory on marketers to maintain at least this price as any further reductions will result in severe losses. Recent crude cuts have helped this condition somewhat. With crude at $1 per barrel few refiners can do more than break even. By taking the retail service station price in Los Angeles as an example it will be seen that the present returns are far too low. The first deduction to come off this 14½-cent figure is the 2-cent gasoline tax. The balance—12½ cents per gallon—represents the cost to the consumer exclusive of tax. The major refiners have established a differential of 4 cents per gallon to the reseller. This reduces the refiner's net return to 8½ cents per gallon. Another cent or two must be deducted for delivery charges and overhead expense. The above deductions have brought the Los Angeles price down to between 6 and 7 cents per gallon. This is a fairly representative figure and refiners could at least break even if this rate was uniform. The chief difficulty, however, lies in the fact that very few refiners are adhering strictly to the 4-cent differential. Some recent contracts were made with 5 and 6-cent differentials. This is one of the principal reasons why the marketing companies are particularly desirous of maintaining at least present prices.

E. L. Doheny, in his announcement of the last gasoline cut made by the Pan American, stated it is "not the result of economic conditions but of the fierce competition for gallonage."

Seal Beach Danger

Anticipated heavy production of the Seal Beach Field resulting from development work in the town lot area will undoubtedly weaken the local market still further within the next 60 days and due to the fact that smaller refiners are already retailing gasoline at from 12 to 14 cents per gallon it is quite possible that bootleggers will be dispensing motor fuel around 9 and 10 cents per gallon during the summer months. It is problematical whether major refiners can maintain present quotations in Los Angeles territory unless Seal Beach crude is prevented from reaching the smaller independents. Prices outside of Los Angeles territory will probably remain stable due to distance from the source of disturbance.

California producers would undoubtedly be able to compete satisfactorily with Mid-Continent operators if sufficient tankers were available for transportation of crude and refined oils to foreign and Atlantic ports. The tanker shortage, however, precludes shipments of more than a small portion of the surplus anticipated as a result of work at Seal Beach.

Long Beach, Huntington Beach, or Seal Beach crude can now be delivered f.o.b. tankers, Los Angeles Habor, at approximately $1 per barrel. This permits the laying down of this crude on the Atlantic Seaboard at approximately $2 per barrel. Companies having their own bottoms, of course, could probably shade this figure. Gasoline with charter rates averaging around $1.25 per barrel can be delivered on the East Coast around 10 or 11 cents per gallon.

Depends on Tankers

The possibility of disposing of surplus production of both crude and gasoline on the Atlantic Seaboard during the next three or four months depends almost entirely on future charter rates and the number of bottoms available. No appreciable relief is anticipated in the immediate future from this source and it looks as though California marketers will be obliged to store a considerable part of the surplus production in California. Unless the tanker situation improves most California pipe line companies will go slow on commitments at Seal Beach and if unable to ship any quantity out it would not be surprising if this crude was cut another 25 cents per barrel to permit the construction of additional storage or the placing of a maximum quantity to be taken on each contract with payment for part of delivery and charge on balance for storage.

New York View

By L. M. Fanning

New York Bureau, The Oil and Gas Journal.

NEW YORK, Apr. 4.—Reductions in the price of California crude and gasoline are regarded in the East as theoretically putting California back in competition with Mid-Continent and foreign sources of supplies. Due to Mid-Continent crude cuts and notably to high tanker charter rates California crude and products which are the last to reflect overproduction conditions by price reductions were more or less eliminated from the eastern markets and the trend has been for California to resume its isolated position of several years ago.

The movement of California oils eastward has continued heavy because of contracts made late in the year but purchases on recently obtaining price levels by eastern refiners have not been possible because of differentials in favor of Mid-Continent crude and products. It is still believed by leading refiners that there will be no important increase in the movement because of the shortage of tankers and the high charter rates. Another factor against an increase in movement is the curtailment of cracking operations by some of the eastern plants. The big increase in the California movement last year was represented by fuel oil and gas oil used for cracking stock and it is not believed that refiners will make further commitments as they are now storing a large part of the products being delivered from the Pacific Coast.

Fear Further Cut

It is believed, however, the reductions in California prices present a new menace in the general oil situation, particularly in view of prospects of increased crude production in California and gains in gasoline production there made possible by the inauguration of cracking. One eastern official expresses the view that the better interests of California and the general industry would be served if California would take steps to curtail both in field production and in gasoline output instead of piling up a surplus for disposal in outside markets.

Until the cut in California prices came it was hoped in the East that steps would be taken in California to keep production down. This may be accomplished somewhat by price reductions but fear is expressed that further cuts might throw California products again in the general markets. There has been a slight easing in tanker rates recently but no relief from the present shortage is expected until later in the year.

CALIFORNIA CRUDE PRICES BEFORE AND AFTER CHANGE APRIL 1, 1927
*Standard Oil Co.-Union Oil Co.

Gravity—	1 Seal Beach Fullerton Long Beach Hunt. Beach Richfield Rosecrans-Dominguez Torrance-Inglewood Old	1 New	2 Whittier La Habra Montebello Old	2 New	3 Kern River Newhall-McKittrick Midway-Sunset Elk Hills Lost Hills Belridge Old	3 New	4 Coyote Old	4 New	5 Santa Fe Springs Old	5 New	6 Coalinga Old	6 New	7 Wheeler Ridge Old	7 New	8 Santa Maria Ventura Salt Lake Old	8 New
14°	.85	.85	.85	.85	.75	.75	.85	.85	....	....	.75	.75	.75	.75	.85	.85
15°	.87	.85	.85	.85	.75	.75	.85	.85	....	....	.75	.75	.75	.75	.85	.85
16°	.90	.85	.85	.85	.75	.75	.85	.85	....	....	.75	.75	.75	.75	.85	.85
17°	.94	.85	.85	.85	.75	.75	.85	.85	....	....	.75	.75	.75	.75	.85	.85
18°	.98	.85	.86	.85	.75	.75	.86	.85	....	....	.75	.75	.75	.75	.85	.85
19°	1.04	.85	.87	.85	.75	.75	.87	.85	....	....	.75	.75	.75	.75	.85	.85
20°	1.10	.85	.89	.85	.82	.77	.90	.85	....	....	.79	.76	.78	.76	.90	.85
21°	1.16	.86	.91	.85	.90	.79	.98	.86	.91	.85	.86	.77	.81	.77	.97	.85
22°	1.22	.87	.94	.85	1.00	.81	1.06	.87	.94	.85	.93	.78	.85	.78	1.04	.85
23°	1.28	.88	.97	.85	1.11	.83	1.14	.88	.97	.85	1.00	.79	.89	.79	1.11	.85
24°	1.34	.89	1.01	.85	1.22	.85	1.22	.89	1.02	.85	1.07	.80	.93	.80	1.18	.85
25°	1.40	.90	1.05	.86	1.33	.87	1.30	.90	1.08	.86	1.14	.81	.97	.81	1.25	.86
26°	1.46	.92	1.09	.87	1.44	.89	1.33	.91	1.16	.87	1.21	.83	1.01	.82	1.32	.87
27°	1.52	.94	1.13	.88	1.55	.91	1.46	.92	1.24	.88	1.28	.85	1.05	.83	1.39	.88
28°	1.58	.96	1.17	.89	1.66	.93	1.54	.93	1.32	.89	1.35	.87	....	....	1.46	.89
29°	1.64	.98	1.21	.90	1.77	.96	1.62	.94	1.40	.91	1.42	.89	....	....	1.53	.91
30°	1.70	1.00	1.25	.91	1.88	.99	1.70	.95	1.48	.92	1.49	.91	....	....	1.60	.93
31°	1.76	1.03	....	....	1.99	1.02	....	....	1.60	.95	1.56	.93	....	....	1.67	.95
32°	1.84	1.06	....	....	2.10	1.05	....	....	1.72	.97	1.63	.95	....	....	1.78	.97
33°	1.92	1.09	....	....	2.21	1.08	....	....	1.84	.99	1.70	.97	....	....	1.79	.99
34°	2.00	1.12	....	....	2.32	1.11	....	....	1.96	1.01	1.77	.99	....	....	1.85	1.01
35°	2.08	1.15	....	....	....	....	....	....	2.08	1.03	1.84	1.01	....	....	1.92	1.03
36°	2.16	1.18	....	....	....	....	....	....	2.16	1.06	....	....	....	....	....	....
37°	2.24	1.21	....	....	....	....	....	....	2.24	1.09	....	....	....	....	....	....
38°	2.34	1.24	....	....	....	....	....	....	2.34	1.12	....	....	....	....	....	....
39°	2.44	1.27	....	....	....	....	....	....	2.44	1.15	....	....	....	....	....	....
40°	2.54	1.30	....	....	....	....	....	....	....	....	....	....	....	....	....	....
41°	2.64	1.33	....	....	....	....	....	....	....	....	....	....	....	....	....	....
42°	2.74	1.36	....	....	....	....	....	....	....	....	....	....	....	....	....	....

*Column 1.—Long Beach, Beal Beach and Huntington Beach crudes, 14 to 32 degrees, inclusive; Richfield and Fullerton, 14 to 30 degrees; Torrance and Inglewood, 14 to 28 degrees; Dominguez, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.

Column 2—Whittier crude, 14 to 22 degrees; Montebello, 14 to 30 degrees.

Column 3—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 33 degrees; Lost Hills and Belridge, 14 to 34 degrees.

Column 8—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura, 14 to 35 degrees. Posted only by Union Oil Co.

Institute to Hold Annual Meeting in Chicago, Dec. 6-8

NEW YORK, Apr. 5.—The eighth annual meeting of the American Petroleum Institute will be held at the Stevens Hotel, Chicago, December 6, 7 and 8.

Prairie Oil & Gas Co. Is Preparing to Store Large Volume of Crude

Because of the tremendous production of oil in the territory covered by the lines of the Prairie Pipe Line Co., the Prairie Oil & Gas Co., the largest purchaser of crude oil in the industry, has been making preparations for taking care of the extra demands made upon it as a purchaser as well as producer.

In the first quarter of this year the company has built, contracted for, purchased and rented steel tankage to the amount of 9,400,000 bbls. in Kansas, Oklahoma and Texas. The storage is scattered at advantageous points. At its big Caney, Kans, tank farm the company has erected fifteen 80,000-bbl and ten 55,000-bbl. tanks and it has provided room for 2,500,000 bbls. of additional crude in the Mexia Field in Texas. Tanks erected in the Seminole region and bought and rented elsewhere make up the balance of the new room for oil provided by the Prairie company. The cost of providing storage and purchasing the oil to fill it (aside from the company's own large production), will run high into the millions, and it is reported that the company expects to invest around $25,000,000 in crude oil and storage facilities.

Prairie's Big Business

These are busy days for the Prairie Pipe Line Co. In the first three months of this year its crude oil shipments north and east from Texas, Oklahoma and Kansas have been 15,036,709.52 bbls. In the first three months of 1926 the same company's shipments were 12,846,832.72 bbls., showing a gain in the first quarter of this year of 2,189,876.80 bbls.

Notwithstanding the big business of the Prairie Pipe Line Co., its chief customer, the Prairie Oil & Gas Co. is storing crude oil daily. Its production and purchases are considerably in excess of its sales, which makes necessary its storage program and its plans for financing the program. There is no present sign of a decided falling off in the pro-

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Crude Runs Reduced 17,060 Barrels

Mid-Continent Refiners Curtail Operations With Present Throughput Lowest Since May, 1926. Large Drop in Oklahoma

By W. T. Ziegenhain

The Mid-Continent crude runs of 401,860 bbls. on April 1 are the lowest since May 1 of last year. The decrease compared to March 1 is 17,060 bbls., and represents the biggest change in the refinery runs since June of last year when the runs were increased 24,000 bbls. The decrease is general throughout the territory but the runs of the Oklahoma refineries have shown the greatest reduction. Oklahoma runs were reduced 8,670 bbls. while the runs in Kansas were reduced 2,850 bbls. Even with this reduction, the runs of April 1 of this year are 33,650 bbls. more than those of last year or approximately 9 per cent higher.

With 103 plants operating April 1 this is 4 less plants than were operating one year ago. The fewer plants however do not reflect a corresponding decrease in the total capacity as that on April 1, 1926 was 549,700 bbls. and on the same date this year, the capacity is shown as 635,400 bbls. This tendency toward increased capacity and fewer plants is general throughout the country.

Oklahoma Operations

The operations in this group were not materially changed from those of last month, no plants having shut down nor were any plants operated which were not operating last month. The lower crude runs were due principally to the decrease at the Marland plant, which are shown on April 1 as 18,000 bbls. daily while 26,200 bbls. were shown for March 1.

North Central Texas Operations

The new plant of the Alamo Refining Co. at Amarillo, Tex., has been running 1,000 bbls. of crude daily. The Amarillo Refining Co.'s refinery at Wichita Falls has been started up and is now running 1,800 bbls. of crude daily.

The Anderson & Prichard refinery at Wichita Falls has been shut down. The Star Refining Co. is expecting to start operating its plant at Fort Worth during April. The American Refining Co. of Wichita Falls has reported a decrease of 75 per cent in its cracking operations.

RUNS TO STILLS IN MID-CONTINENT REFINERIES

	Bbls. Daily
1925	
April 1	383,150
May 1	398,940
June 1	423,950
July 1	440,350
August 1	427,382
September 1	407,690
October 1	415,575
November 1	383,225
December 1	375,979
1926	
January 1	390,200
February 1	385,845
March 1	365,990
April 1	368,210
May 1	391,355
June 1	415,450
July 1	410,070
August 1	407,475
September 1	419,995
October 1	408,975
November 1	417,575
December 1	403,450
1927	
January 1	403,625
February 1	418,595
March 1	418,920
April 1	401,860

MID-CONTINENT REFINERY OPERATIONS

Table No. 1

(Based on plants April 1, 1927, and March 1, 1927)

	*No. Plants Apr. 1	Crude Cap. Bbls.	Crack. Cap. Bbls.	Plants Oper. Apr. 1	Runs to Stills Apr. 1 Bbls.	Plants Oper. Mar. 1	Runs to Stills Mar. 1 Bbls.	Daily Decrease April 1
Oklahoma	48	269,900	80,100	42	171,675	43	180,345	8,670
N. C. Texas	40	164,200	41,800	35	94,525	34	94,975	450
‡Kansas	20	126,000	61,600	15	79,400	15	82,250	2,850
No. Louisiana	5	43,300	19,300	4	37,760	4	40,550	2,790
Arkansas	10	32,000	30,000	7	18,500	7	20,800	2,300
Total	123	635,400	232,800	103	401,860	103	418,920	17,060

*Does not include plants shut down one year or more. ‡Includes two Missouri plants.

Table No. 2

(Based on Plants April 1, 1927, and April 1, 1926)

	No. Plants April 1,1926	Crude Cap. April 1, 1926	Plants Oper'g. April 1, 1926	Runs to Stills April 1, 1926	Daily Increase April 1, 1927
Oklahoma	58	174,200	46	162,430	9,245
N. C. Texas	46	177,100	30	81,150	13,375
‡Kansas	23	130,900	17	72,675	6,725
N. Louisiana	6	37,500	5	33,500	4,260
Arkansas	9	30,000	9	18,455	45
Total	142	549,700	107	368,210	33,650

*Does not include plants shut down one year or longer.
‡Includes one Missouri plant.

REFINERY OPERATIONS IN OKLAHOMA

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs April 1	Runs March 1
Anderson-Prichard Oil Corp., Cyril	1,500	1,200	1,200
Barnsdall Refineries, Inc., Barnsdall	6,000	3,500	3,600
Barnsdall Refineries, Inc., Okmulgee	10,000	5,500	4,700
Bell Oil & Gas Co., Grandfield	4,500	1,700	1,800
Bolene Refining Co., Enid	5,000	2,000	2,000
Cameron Refining Co., Ardmore	4,000	2,000	2,300
Canfield Refining Co., Yale	500	75	75
Champlin Refining Co., Enid	16,000	11,800	11,800
Continental Oil Co., Sapulpa	10,000	2,400	2,400
Cushing Refining & Gasoline Co., Blackwell	1,500	1,400	1,400
Cushing Refining & Gasoline Co., Cushing	2,500	2,100	2,100
Empire Refineries, Inc., Cushing	5,000	4,700	4,700
Empire Refineries, Inc., Okmulgee	3,000	3,000	3,000
Empire Refineries, Inc., Ponca City	7,500	7,500	7,500
Garber Refineries, Inc. (Omar), Garber	3,500	3,000	2,500
Gilmer Oil Co., Ringling	1,500	Shut down	Shut down
Globe Oil & Refining Co., Blackwell	5,000	5,000	5,000
Illinois Oil Co., Cushing	3,000	200	250
Imperial Refining Co., Ardmore	5,000	1,700	3,000
Independent Oil & Gas Co., Okmulgee	4,000	3,000	3,000
Interocean Refining Co., Bristow	4,000	1,000	1,000
Lawton Refining Co., Lawton	1,000	Shut down	Shut down
Johnson Oil Refining Co., Cleveland	5,000	5,000	4,500
Marland Refining Co., Ponca City	28,000	18,000	26,200
Mecca Refining Co., Allen	1,500	Shut down	Shut down
Mid-Continent Petroleum Co. (Cosden), West Tulsa	40,000	24,000	24,000
Oil State Refining Co., Enid	2,000	Shut down	Shut down
Oil State Refining Co., Allen	800	350	350
Peppers Gasoline Co., Covington	1,000	1,000	700
Pierce Oil Corp., Sand Springs	12,000	6,500	6,500
Producers Oil Co., Bristow	2,500	1,100	1,000
Producers & Refiners Corp., West Tulsa	6,000	3,000	3,000
Pure Oil Co., Ardmore	5,000	1,900	2,000
Pure Oil Co., Muskogee	5,000	3,900	3,600
Riley Petroleum Co., Bristow	1,000	500	600
Rock Island Refining & Pipe Line Co., Duncan	2,500	1,500	1,500
Sayre Oil & Refining Co., Sayre	500	Shut down	Shut down
Shaffer Oil & Refining Co., Cushing	10,000	10,000	10,000
Sun Oil Co., Yale	3,000	2,500	2,500
Sinclair Refining Co., Muskogee	1,000	Shut down	Shut down
The Texas Company, West Tulsa	10,000	12,000	12,000
Texas Pacific Coal & Oil Co., Wynnewood	2,500	1,500	1,650
Tidal Refining Co., Drumright	10,000	8,000	8,000
Transcontinental Oil Co., Boynton	2,500	2,000	2,000
Transcontinental Oil Co., Bristow	5,000	3,500	4,200
Tonkawa Petroleum Co., Tonkawa	2,500	800	1,000
Western Oil Corp., Beckett	2,000	1,000	1,100
Yale Oil Corp., Yale	1,500	750	700
Total	269,900	171,675	180,345

REFINERY OPERATIONS IN NORTH CENTRAL TEXAS

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs April 1	Runs March 1
Alamo Refining Co., Isom	2,000	1,000	...
Amarillo Producers & Refiners Corp., Isom	2,000	800	750
Amarillo Refining Co., Amarillo	6,000	4,000	4,000
Amarillo Refining Co. (Miller plant), Wichita Falls	5,000	1,800	Shut down
American Refining Co., Wichita Falls	5,000	5,000	4,700
Anderson & Prichard Oil Corp. (Western), Wichita Falls	3,000	Shut down	1,000
Col-Tex Refining Co., Colorado	6,500	5,000	5,500
Continental Oil Co., Wichita Falls	6,000	4,800	4,800
Dale Oil & Refining Co., Electra	2,500	2,200	1,800
Empire Refineries, Inc., Gainesville	5,000	4,000	4,000
Falls Refining Co., Wichita Falls	1,500	1,400	850
Gulf Refining Co., Fort Worth	10,000	6,500	6,400
Hagaman Refining Co., Tiffin	2,000	275	275
Humble Oil & Refining Co., Burkburnett	4,000	1,750	1,750
Iowa Park Producing & Refining Co., Iowa Park	2,500	1,150	1,200
Kent-Middleton Refining Co., Angus	3,000	2,000	1,900
Kent-Middleton Refining Co., Minerva	2,500	1,900	1,400
Macmillan Petroleum Co., Isom	5,000	3,000	3,800
Magnolia Petroleum Co., Fort Worth	15,000	7,200	7,200
Magnolia Petroleum Co., Corsicana	3,000	2,700	2,700
Megargel Refining Co., Megargel	1,500	Shut down	Shut down
Noble Oil & Gas Co., Burkburnett	3,500	2,650	3,000
Olney Oil & Refining Co., Olney	1,500	1,100	1,100
Oriental Refining Co., Dallas	5,000	Shut down	Shut down
*Oriental Refining Co. (Trinity), Dallas	5,000	2,800	2,800
Orient Petroleum Co., Wichita Falls	4,000	400	600
Panhandle Refining Co., Wichita Falls	4,000	3,250	3,000
The Petroleum Corp., Electra	2,000	Shut down	Shut down
Primrose Refining Co., Wichita Falls	1,500	1,000	1,000
Primtex Refining Co., Grand Prairie	2,500	1,000	1,000
Simms Oil Co., Dallas	4,500	3,800	3,800
Star Refining & Producing Co., Fort Worth	1,800	Shut down	Shut down
The Texas Company, Dallas	15,000	9,700	9,700
Tidal Western Refining Co., Burkburnett	3,000	2,300	2,500
Texas Pacific Coal & Oil Co., Fort Worth	3,000	2,300	2,300
Transcontinental Oil Co., Fort Worth	5,000	3,500	3,500
Travis Refining Co., Burkburnett	750	350	350
Waggoner Refining Co., Electra	3,400	2,700	2,700
White Eagle Oil & Refining Co., Fort Worth	4,000	1,000	2,000
Wilson Brothers Refining Co., Wichita Falls	2,500	1,200	1,600
Total	164,200	94,525	94,975

*Operated by Magnolia Petroleum Co.

REFINERY OPERATIONS IN KANSAS

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs April 1	Runs March 1
Arkansas City Refining Co., Arkansas City	8,000	Shut down	Shut down
Barnsdall Refineries, Inc., Wichita	5,000	Shut down	Shut down
Derby Oil Co., Wichita	5,000	3,000	3,500
Derby Oil Co., Russell	2,500	Shut down	Shut down
Eldorado Refining Co., Eldorado	4,000	2,000	2,000
Golden Rule Refining Co., Wichita	1,000	500	750
Kanotex Refining Co., Arkansas City	9,000	7,000	5,000
Manhattan Oil Co., Kansas City	6,000	4,500	3,500
Miller Petroleum Co., Humboldt	2,000	Shut down	Shut down
National Refining Co., Coffeyville	6,000	6,000	6,300
Peerless Oil Refining Co., Chanute	3,000	2,300	2,200
Roxana Petroleum Corp., Arkansas City	20,000	17,000	18,000
Sinclair Refining Co., Coffeyville	8,000	7,000	6,800
Sinclair Refining Co., Argentine	7,000	6,800	6,700
Skelly Oil Co., Eldorado	15,000	9,600	11,500
Standard Oil Co. of Kansas, Neodesha	12,000	6,500	8,000
Vickers Petroleum Co., Potwin	3,000	1,600	1,700
White Eagle Oil & Refining Co., Augusta	6,000	5,900	5,500
West Missouri Group—			
Alliance Rubber Producing Co., Centropolis	2,000	Shut down	Shut down
Wihoit Refining Co., Joplin	1,500	600	800
Total	126,000	79,400	82,250

REFINERY OPERATIONS IN NORTH LOUISIANA

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs April 1	Runs March 1
Crystal Oil Ref. Corp., Shreveport	10,500	9,000	9,000
Great Southern Refining Co., Ardis	2,000	Shut down	Shut down
Louisiana Oil Refining Corp., Shreveport, Bossier	20,000	18,500	20,300
Shreveport Producing & Refining Co., Shreveport	5,000	4,600	5,000
*The Texas Company, Shreveport	5,800	5,660	6,250
Total	43,300	37,760	40,550

*Topping.

REFINING OPERATIONS IN ARKANSAS

(Plants which have been in operation during the past year.)

Name and Location—	Daily Capacity	Runs April 1	Runs March 1
Henry H. Cross Co., Smackover	4,000	4,200	3,800
Home Refining Co., Camden	500	Shut down	Shut down
Home Oil & Refining Co., Hot Springs	500	Shut down	Shut down
Houston Oil Co., Camden	3,000	2,000	2,400
Kettle Creek Refining Co., Pearson	6,000	2,500	4,000
Lion Oil & Refining Co., El Dorado	12,000	6,000	6,400
Newark Refining Co., El Dorado	1,500	1,000	1,300
Ouachita Valley Refining Co., El Dorado	1,000	800	800
Root Refineries, El Dorado	2,500	2,000	2,100
E. M. Tulle, El Dorado	1,000	Shut down	Shut down
Total	32,000	18,500	20,800

Cherokee Well Due to Perseverance

Spindletop Operator Suffered Many Lean Years Before He Succeeded in Proving His Theories Were Correct

By J. L. Dwyer

M. A. Davey, of Palestine, Tex., is primarily responsible for the discovery of the new Cherokee County well opened recently by the Humble Oil & Refining Co., upon an inland salt dome. Romance and prosperity have been interspersed with drabness and adversity in the life of this man whose days have alternately been swept by gigantic emotions, overwhelmed by collossal tragedies, and steeped in titanic joys.

Little has been heard of him in recent years, although he figured in the development of the famous Spindletop Pool some twenty years ago, and since that time has experienced many variations of human want and human woe.

Resting now with the comforts of a substantial fortune, and the glory of an exceptional achievement, he is showing unusual judgment by refraining from the course of action which too often characterizes the career of those who have made a strike after years of misfortune and discouragement. Mr. Davey steadfastly refuses to indulge in the publicity which so many in his position would eagerly seek, and it is reported that he politely but firmly declined to be the guest of honor at a banquet proposed by his fellow townsmen. Were it not for Wallace E. Pratt, vice president of the Humble Oil & Refining Co., who unstintingly praised Mr. Davey's persistence and perseverance in working out the possibilities of Anderson and Cherokee Counties, it is probable that this story would never have been written, but Mr. Pratt, typical of the majority of executives in the petroleum industry, realizes that although the bulk of credit for the discovery naturally redounds to the Humble's geological department, there is ample glory for all who were instrumental in the Cherokee find, and Mr. Davey was the first to intelligently follow the chances of this region. For reward, he is reported to have sold one million dollars worth of royalty.

Fiction Versus Fact

There have been countless violations of accuracy placed before the American public in the celluloid reels of the movies and the fine print of the best sellers. Glowing accounts of how raw green hands have carelessly strayed into the oil fields possessing only a manly bearing, or a chin which is cleft, and—presto—three reels or twenty-three thousand words later, fortune is theirs. Other authors have preferred to portray the successful (if questionable) activities of promoters who though sans cash or suitable credit ratings have nevertheless succeeded in outmanaging the officials of oil companies, and raked in millions from the oil fields. It is a simple matter, in fiction and in film, but in real life—well just try it.

The career of Mr. Davey, although full of romance, is a picture from the life of the petroleum industry, and the only manner in which it resembles the hero of the contemporary author is in the beginning and the end. He started with little, he will probably end his days with much, but in the intervening period, there were over twenty years of intensive effort. Effort which would have tried the hearts of a dozen ordinary individuals, and an effort which was undaunted by failure, and ridicule after ridicule. It is interesting to observe the uniformity of conduct which is evidently one of the complex elementals of his character for he greeted failure and ridicule with a smile, and the smile now greets the feeble attempts at flattery which are his daily portion of that creed long present in petroleum, "Jones, the chump if you fail, —but our brilliant Mr. Jones if you strike it."

Wealth Failed to Change Him

One of the best indexes of a man's character is his reaction to success, and if at the whim of Dame Fortune he suddenly finds himself surrounded with all the appurtenances of wealth, and is unable to make a judicious use of them, he must be placed below par. Success has failed to manifest even the slightest change in the subject of this story, and should his present standards continue he properly deserves a place in the category of those of whom it may justly be said—"These be men."

In the mad whirl of events which attended the development of the great Spindletop Pool in the Gulf Coast region of Texas about 25 years ago, M. A. Davey came into possession of a sum which in those times constituted a fortune. In the lottery of life, he suddenly won, and then his difficulties began, and with the loss of his wife, he experienced what was probably his first great sadness. Troubles seemed to have his address memorized to perfection, and hunted him with ceaseless regularly. Unwise investments, and misplaced confidence resulted in the complete annihilation of the fortune which melted and disappeared almost as suddenly as it had come, and again he was a poor man.

A natural student, he had been given certain attainments which were developed with his oil field experience, and he was attracted by the causes of oil accumulation rather than its effects. After a time, he left the Gulf Coast regions, and represented one more life won by the fascination of petroleum, and consecrated to a pursuit of its production and profits. After touring several localities of East and West Texas, he settled upon the country represented by Anderson and Cherokee counties, and determined that here former fortunes would be recouped. In this he differed from the average "creekologist" for his determination was influenced by a study of surface formations and various rock outcroppings which he observed in the region. Always intelligent and alert, constantly studying and traveling the hills and prairies, he is said to have a detailed knowledge of the best part of the two counties, and geologists working this section of the Lone Star State have been known to consult him for details of surface conditions.

Many Lean Years

The years which followed his appearance in East Texas were lean years, in which he is said to have eked out a very poor existence; but he was ever mindful of his real purpose, and constantly mapping and examining the surface rocks. During all this time he was practically a recluse, although his routine was distributed by occasional visits to Fort Worth or Houston in an effort to interest some oil companies in leases; visits which usually were unsuccessful.

Some two years ago he found what is now the Cherokee salt dome, and his first interest is said to have been attracted by a saline prairie which grew a grass that cattle refused to eat. Recognizing that it had some possibilities, but having insufficient knowledge to follow his findings to a conclusion, he again tried to interest capital in a drilling venture, and again he failed.

Believing unlimitedly in the prospects of his find, he started a well on his own limited resources, and it was here that the real Herculean struggle began. A small gasoline engine furnished his power. A typical "stick and mud" structure, crude in design, but at least answering his purpose, was his derrick, and his drilling crew was composed of negroes recruited from adjacent cotton fields and mills. The entire equipment was pitifully inadequate, but by a miraculous means, he managed to attain a depth of 500 feet before he ran out of drill pipe.

Persistence Won Out

Again threatened with failure, he wended his way to market, and once more invaded the offices of oil companies in an effort to obtain financing. Discouraging circumstances had met his drilling activities, for the salt dome which is usually found from 300 to 700 feet, was entirely missing from his log.

The Rio Bravo Oil Co., of Houston through the recommendation of their district geologist Paul Applin, purchased 1,000 acres of leases from him for a nominal sum, and then he visited Wallace E. Pratt of the Humble Co. After various negotiations, he sold the Humble Co., his interests in the well retaining an overriding royalty, and receiving some cash for his block of leases, and was also allowed a good price per foot to deepen the well. This was his first encouragement, and he immediately took new heart and resumed drilling. His cash he employed for the purchase of oil royalty, and the funds for drilling gave him sufficient pipe and other equipment to properly pursue the work.

At this point the geological department of the Humble enters the scene and must be given credit for the remaining efforts. The district geologist Moses Knebel found the Cherokee Dome a trying proposition. Unlike most domes which may be observed with the naked eye, this dome required 90 days' work and study before a coherent idea of its outline could be obtained. Comparing the logs of neighboring wells, Mr. Knebel found what he thought to be an island of Eocene age and a formation which closely correlates with the Wilcox sand of Oklahoma. Working upon this, the district sub-surface geologist H. J. McClellan of Corsicana, Texas made various correlations which gave the department some confidence in the prospects, but here they were confronted by the executives of the company who were more or less opposed to investing much money in a venture which to them looked forlorn. Geology triumphed, and the drilling was continued with the results which are now known to the industry, and the well has been variously estimated from 5,000 to 10,000 barrels a day.

Mr. Davey has sold a good part of his royalty, and has his million dollars. The town bankers who formerly flouted his theories and ideas are now eager to consult him, and all their efforts receive the same non-committal smile which greeted their efforts in days of failure—just the smile, that's all—no advice. The town is preparing for the rush, which is destined to follow this discovery, and half the merchants have almost abandoned their stores and turned oil men over night. Maps are seen in every pocket on Main Street, and trades and deals in royalty and leases are discussed at every corner. The town has wakened from its years of lethargy and seems to be making an effort to synchronize its activities to the pulsations of oil, but the man who discovered and nursed the Cherokee Dome is impervious to all of this and calmly goes about his business; asking nothing, taking nothing, minding his business, all his business and nobody else's business. His name should be indelibly inscribed in the annals of petroleum. The industry could stand many of his type, and by their inclusion be a better and finer industry.

HUMBLE SPENT LARGE SUM BEFORE IT OPENED BOGGY CREEK POOL

JACKSONVILLE, Tex., Apr. 2.—This place and Palestine to the east in Anderson County present the usual scenes incident to the opening of a new field. Geologists, scouts and small operators are here in abundance and also in Palestine. Oklahoma men have flocked to both places, but as yet they are merely watching developments and have done very little leasing.

Two reasons are responsible for the lack of wild leasing usually witnessed in new fields. The first is that the Humble Oil & Refining Co. has all the available acreage within 3 miles of its new well at the southwest side of Terry Dome, Boggy Creek, Cherokee County. It is credited with holding more than 30,000 acres in which the Rio Bravo Oil Co., a subsidiary of the Southern Pacific Railroad, has a 17-per cent interest in 750 acres of the block. The second reason is that it is a dome proposition, something with which the average oil operator is unfamiliar, unless it is in the Gulf Coast section. The geological sharps are going over Cherokee, Anderson, Rusk and adjoining counties, studying conditions but withholding opinions. Many of them have been over the ground before and most of them have read published scientific papers on conditions to be found in northeast Texas and over into northwest Louisiana.

Wildcatting 20 Years

Intermittent wildcatting has been conducted in the territory mentioned for 20 years, but the Humble Oil & Refining Co.'s No. 1 Elliott and Clark, 14 miles west of Jacksonville, is the first big well to be developed. Scores of tests to 1,000-1,500 feet have been drilled in those counties and others contiguous to them and two tests have gone to around 5,000 feet. The presence of such saline domes as Keechie, Butler and others have been known for years. Probably as much as $1,000,000 has been expended in wildcatting on and around the Keechie Dome in Anderson County, 12 miles southwest of Palestine. The last tests drilled there about five years ago were by southern California men.

The files of The Oil and Gas Journal will show a long list of wildcat tests stretching from Leon County northeastward into Anderson, Cherokee, Rusk, Panola, Harrison and extending over into Louisiana. This work covers a period of 20 years. The Humble company's well in Cherokee County is the result of persistent and expensive wildcatting.

In view of this record leasers are conservative. J. S. Cosden & Co. is starting a test at Keechie Dome in Anderson County. Alexander & Lyles have a location on Butler Dome in the western part of Anderson County, near the Trinity River. The Elkhart Production Co.'s No. 1 Henby, in the southern part of Anderson County near the Trinity River. T. A. Carter, of Austin, has secured two permits to drill in the bed of the Neches River.

The Humble Oil & Refining Co.'s No. 1 Posey, near Jarvis, in the southeastern part of Anderson County, is drilling

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Winkler County Operations Curtailed

Area Will Be Developed When Market Conditions Warrant. Small Acreage Blocks Might Have Proved Menace

By C. D. Lockwood

FORT WORTH, Tex., Apr. 4.—The first voluntary shutdown of operations in a West Texas field of large potential production has been effected in Winkler County, just south of the New Mexico border, where the Gulf Production Co. brought in a 4,000-bbl. well last week. No agreements have been made by any of the companies concerned in this area, but it is mutually understood that only the necessary offsets to present producers will be drilled in and completed, while one other test will be drilled to the top of the pay and shut in as long as the present market conditions obtain. This will save the drilling of at least nine wells along the boundaries of the Gulf's 160-acre lease and will remove the necessity for building considerable steel storage.

When Winkler County was added to the list of West Texas counties containing heavy producers, it was regarded as particularly threatening to the market because of the comparatively small tracts into which the acreage adjacent to the pool is subdivided. As shown on the accompanying map, several companies hold leases within a short distance of the discovery well, and a heavy drilling campaign, similar in some respects to that in the Church & Fields Pool of Crane County, was feared. The Gulf Production Co. immediately erected four new steel rigs on its lease, the Pure Oil Co. started work on its offset to the two producers, the Atlantic Oil Producing Co. staked a location, and the Independent Oil & Gas Co. planned a test offsetting the Gulf's No. 4 and the Southern Crude Oil Purchasing Co.'s No. 3-C Hendricks.

Would Have Forced Drilling

If these tests had been started, the Independent would have been forced to offset the Atlantic, and the Gulf in turn would have been compelled to start another on its south line offsetting the Independent. The Southern Crude, also, would have been forced to offset the Gulf's No. 3, south of the big well. Due to the condition of the crude market and the lack of storage and pipe line facilities, however, the Southern Crude decided to drill its No. 3-C only to the top of the pay and shut it in without completing it for the time being. The Gulf Production Co. then decided to stop work on all four of its new rigs, and the Atlantic Oil Producing Co. has postponed the drilling of its proposed test offsetting the south line of the Gulf lease. The Independent Oil & Gas Co. will erect the rig for its test diagonally offsetting the Southern Crude's No. 3-C and then shut it down awaiting future developments.

The offsets to the producers, of course, will have to be completed, due to drainage of the producing horizon at that point, and the wells to the west of the producers will also be completed in order to find out what the conditions are in that direction. The net result of this sensible policy, however, will be the elimination of nine drilling wells at a time when they should be eliminated for the good of the industry.

The Southern Crude Oil Purchasing Co. has one 55,000-bbl. tank practically full of oil in the N half NE, Section 4, Block B-12, and is building another. The Gulf's big well is pinched down to 15 bbls. an hour, and the discovery is making about 380 bbls. daily. It has been deepened from time to time, the total depth now being 3,044 feet, or 370 feet in the lime, with no water in evidence as yet. The Gulf producer is 132 feet higher on the top of the lime than the discovery and is 96 feet higher than the Southern Crude Oil Co.'s No. 1-C, its west offset. At latest report, the Independent Oil & Gas Co.'s west offset to the discovery had not reached the sale at 2,090 feet. Sufficient data is not yet available to indicate what the condition is in this field, but geologists are hazarding the opinion that these wells are situated in close proximity to a fault, although its exact location and direction are not known at present.

Following are some figures of interest to those who watch the top of the salt carefully: The figures given are depths above or below sea level:

Name of Well—	Top of Salt	Top of Lime
Discovery well	+ 875	+131
Gulf Prod. Co.'s No. 1 Hendricks	+1,136	+263
Marland-Zoch's No. 1 Sealy	+1,647	—491
Llano Oil Co.'s No. 1 Scarborough	+1,806	
Skelly Oil Co.'s No. 1 Leeman	+1,784	
Ladd & Simon's No. 1 Amburgey	+1,813	—332

There are just two dry holes in Winkler County and another which is located almost exactly on the line between Winkler and Ector Counties. Brandon & McCamey's No. 1 Kloh & Rumsey, in Section 11, Block 46, T-1-N, in the northeastern part of the county, topped the salt at 1,713 feet above sea level with a surface elevation of 3,358 feet. Bottom of the salt was plus 550 feet, and total depth 3,502 feet. The lime was not reached at this depth. This well was completed about November 1, 1926.

Leigh Taliaferro's (Wentz Oil Corp.'s) No. 1 Sealy, in Section 28, Block A, Gunter, Munson, Maddox and Anderson Survey, had a surface elevation of 2,800 feet and was plugged at 3,537 feet without reaching the lime. The top of the salt was 1,779 feet above sea level and bottom of salt plus 384 feet.

Llano Oil Co.'s No. 1 Cowden, located on the Winkler-Ector line between Section 1, Block B-13, and Section 5, Block B-14, had a surface elevation of 2,923 feet and was drilled to 4,008 feet. Top of salt was found at 1,130 feet or plus 1,793 feet, and bottom of salt at 2,440 feet or plus 483 feet. The top of lime is difficult to determine in this well, but a formation at 3,730 feet, or 807 feet below sea level, is believed to correlate with the top of the lime as determined in other wells in that part of the country.

The Llano well was completed early in December last year, and the Wentz test was abandoned about the same time as

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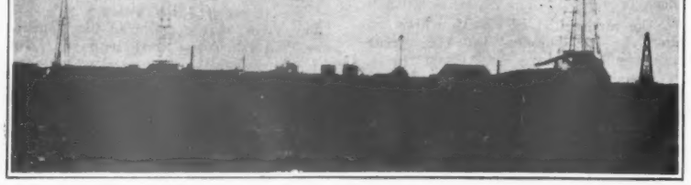
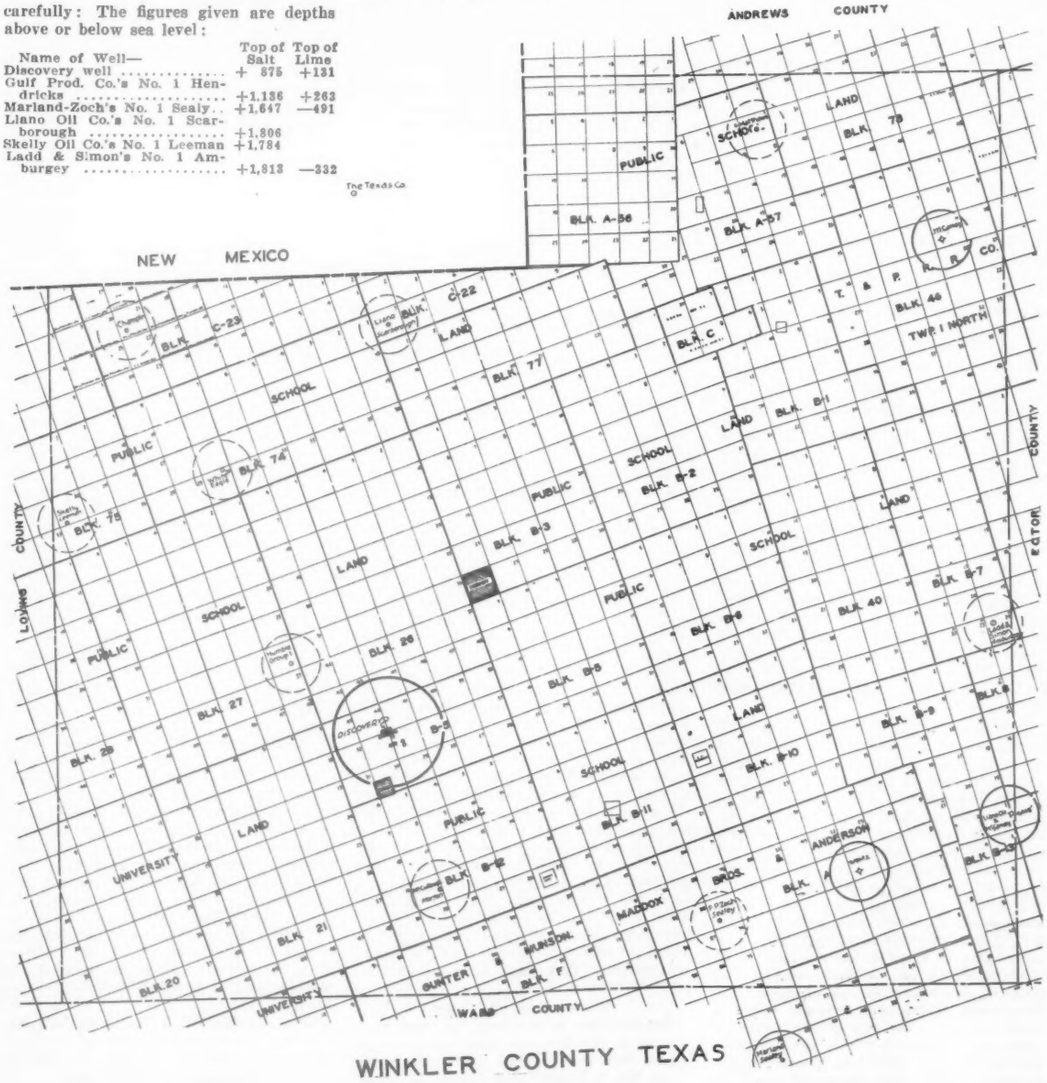


View of the Winkler County Pool, showing Gulf Production Co.'s No. 1 Hendricks, 4,000-bbl. well, in the right foreground. The well on the extreme right in the background is the discovery, R. A. Westbrook's No. 1 Hendricks, which was bought by the Southern Crude Oil Purchasing Co.



California Drilling Records Broken

Activity at Seal Beach Exceeds That Heretofore Seen on Pacific Coast. Instances of Six Wells to Acre

By J. E. Eaton
Consulting Geologist

All California records for drilling activity and oil excitement have been broken in the Alamitos Heights town-lot extension of Seal Beach. Past scrambles of a similar nature have been tame in comparison with the development now taking place at this new locality. A period of a little over one month since the discovery well was put on production has seen nearly 90 projects drilling or erecting derricks on an area covering only a few city blocks, there being in some cases as many as six derricks to the acre. The roads leading to this scene of remarkable activity have been choked with trucks bringing material for operations that have been pushed by day and night shifts with no apparent regard for torrential rains during a portion of the time.

Unless restrictive measures are taken, it appears probable that production at Alamitos Heights will attain a figure of 30,000 or more barrels within the next 60 days. As the older and major portion of Seal Beach has been estimated under conservative development to be good for 50,000 bbls., it seems likely that the peak for the field as a whole may exceed 80,000 bbls. daily.

Large Production Temporary

There is a silver lining to the general cloud, however, at least for the oil industry in general. This is because the town-lot production, which may rise in the near future with great rapidity, may decline almost as rapidly as it will have risen.

The writer believes that the effect upon the California situation of the development at Alamitos Heights has been exaggerated and that fears of disastrous overproduction to be caused thereby are premature.

From the evidence available, it appears likely that the Alamitos Heights extension at Seal Beach may be almost a duplication of the Los Cerritos extension at Long Beach. This is indicated both by the apparent geology and by the development. Even more wells are being drilled off-structure at Alamitos Heights than was the case at Los Cerritos, and those that are on structure cannot reasonably expect a greater thickness of sand than that which occurs at Los Cerritos, probably not as much.

The average oil operator in southern California has perhaps banked too heavily on two recent factors, these being the phenomenal production of the town'ot area at Huntington Beach, and the large initial yields obtained at Seal Beach. Both of these features are exceptions rather than the rule. The Huntington Beach townlot area will pay out only because it has 1,200 feet of productive sands, a thickness which will almost certainly be absent at Alamitos Heights. In the second instance, the large initial yields obtained from a few feet of sand at Seal Beach are deceiving for the reason that they are from far-spaced wells in virgin territory. There is no 20 or even 80 foot sand in the world that can stand up for more than a few weeks under such drainage conditions as will be established at Alamitos Heights (see map).

Peak in June or July.

Unless restrictive measures are taken, the peak for Seal Beach as a whole is expected in June or July, this being almost similtaneous with that of the Alamitos Heights extension of the fields. The peak of production in California for 1927 will doubtless be synchronous, for there is nothing in sight except Seal Beach to hold up the state yield under current policies of development.

In the older and more conservatively developed portion of Seal Beach, the wells are normally spaced and will decline less swiftly. The upper oil zone is nevertheless being rapidly drained at this time, and the initial yield of wells completed in this horizon will doubtless be perceptibly lower before this article is printed. The second oil zone has not been produced from on the higher structure, and is therefore comparatively undeveloped.

Oil Horizons.

The upper or Bixby oil zone at Seal Beach has a maximum thickness of approximately 80 feet, and has furnished initial production of oil in virgin territory as high as 3,000 barrels. The commercial parts of this horizon are restricted to the top portion of the anticline, and do not occur in the Alamitos Heights extension. Some trouble with edgewater has been encountered on the fringe of the upper oil zone, but this is local, and the better located wells are not affected. The gravity of the oils approximates 23 degrees.

The second or Selover oil zone is encountered approximately 200 feet below the top of the Bixby zone. This second zone has been penetrated only a little over 25 feet in the productive territory, and its total thickness is therefore unknown. It has been produced from only on the lower structure, where it has yielded up to 3,000 or more barrels per well. When this horizon is produced from on the higher structure, some of the largest yields ever obtained in Los Angeles Basin are expected. The Selover zone is the horizon encountered in the discovery well of the Alamitos Heights extension, and will furnish much or all of the production at that locality. The gravity of the oils approximates 26 degrees. Water troubles have so far been almost entirely absent in this horizon.

Structure

Seal Beach is one of nine distinct anticlinal structures which occur in Los Angeles Basin along the fault zone extending from Newport to Beverly Hills. According to a theory published by the writer in 1923, the drag resulting from differential horizontal movements along a line of deep-seated sheering between Newport and Beverly Hills, caused these nine anticlines together with a number of secondary faults, to occur en echelon and at almost regular intervals over a length of 40 miles. The writer has elsewhere discussed the mechanics of this district in more detail.[1]

The Seal Beach anticline, in common with the adjoining structures at Long Beach and Huntington Beach, was formed by the differential horizontal component of movements which occurred along this Newport-Beverly fault zone chiefly in Lower Pleistocene time. The horizontal drag attending these movements caused both the anticlines and the secondary fractures mentioned to form in the zone of faulting. The anticlines differ in minor details, but all of them conform closely in their fundamental features and relations. They are arranged en echelon, and have strikes which make angles of from 5 to 16 degrees with the strike of the line of maximum sheering. The Seal Beach, Dominguez, and Long Beach anticlines are bowed as a result of the formative drag, the northwestern portion of all three structures tending to take an increasingly northerly strike almost parallel with the line of maximum sheering, and the southeastern portions a more easterly deflection as the en echelon arrangements of the anticlines removes these portions to greater distances from the more direct influence of the drag (see map).

At least four secondary fractures are embraced in the Newport-Beverly fault zone, including those at Inglewood, Potrero, and Reservoir Hill. These secondary fractures are sometimes confused with the Newport-Beverly fault zone as a whole, whereas they are only short component parts which branch off at a slight angle from the line of maximum sheering.

The anticlines along the Newport-Beverly fault zone have as a rule long and gentle northwest plunges, and become narrower and steeper on their southeastern ends. This feature, which is due to the direction of the formative drag, is particularly pronounced at Seal Beach.

History of Development

The Seal Beach area is between Huntington Beach and Long Beach, in Los Angeles Basin, and existed for years as a gap in a line of great oil fields which occur at almost regular intervals along the Newport-Beverly fault zone. Nearly every geologist connected with any large California interests had recommended Seal Beach to these interests before the discovery.

As the dynamics of the Newport-Beverly fault zone have been known for some time, it was obvious that (1) the crest of the hidden fold should occur within one mile of the line of maximum sheering along the fault zone, (2) this crest should occur between five and six miles southeast of the crest at Long Beach; and (3) the axis of the fold would probably strike between 51 and 59 degrees west of north.

The Shell Co. of California was the first careful wildcatter at Seal Beach. The Shell campaign, although admirably planned, was unsuccessful for the reason that the Seal Beach anticline narrows near its structurally high point (see map) and passes as a steeply dipping fold between the two first wells drilled. The first Shell well actually produced oil for a time, but was abandoned because of mechanical troubles.

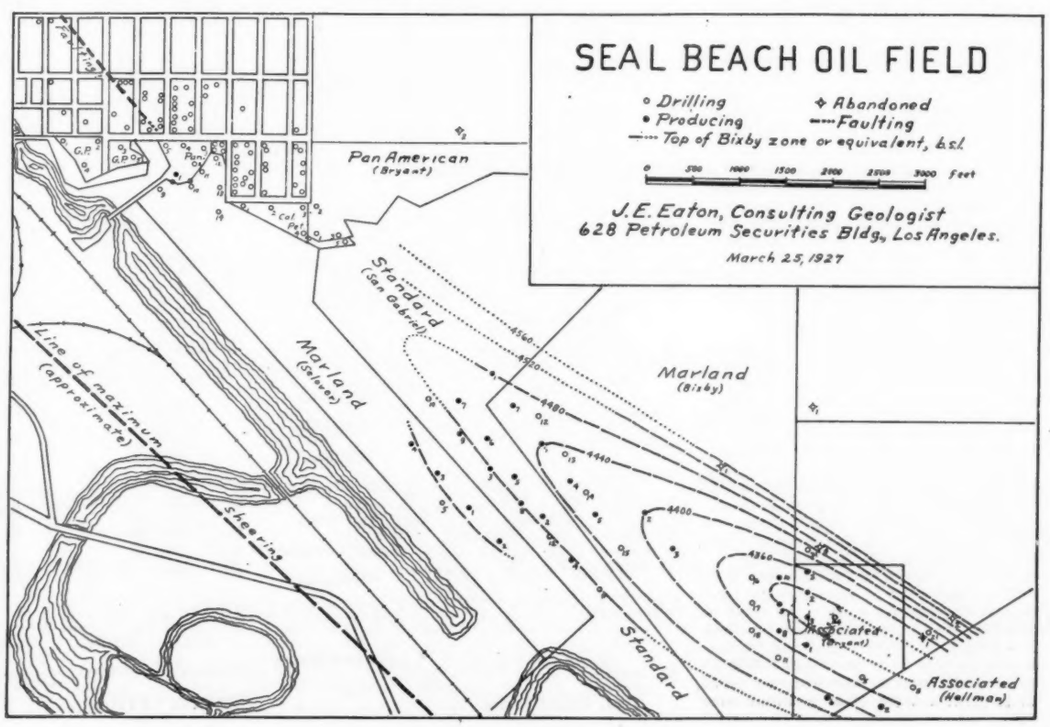
The first commercial production at Seal Beach was secured by the Marland Oil Co. of California in the second well drilled by this company on its Bixby lease.

Future Possibilities

By far the greater part of the Seal Beach Field is controlled in large blocks by three companies, and will be normally developed. The extreme northwestern end of the anticline projects into Alami-

(Continued on Page 163)

[1] J. E. Eaton, "A Contribution to the Geology of Los Angeles Basin, California"; Bull. Amer. Asso. Petrol. Geol., Vol. 10, No. 8, August, 1926.



6,174 Wells Produce Half the Oil

The Other Half Is Produced by 308,075 Wells. Present Price Slump Caused by Only 330 Wells

By James McIntyre

Many requests from widely separated sources for information on production per well in fields not included in The Oil and Gas Journal's weekly production reports has prompted a general survey of the production situation which has brought out some very interesting and at times surprising facts. One result of the survey was to emphasize how few wells it takes to upset the balance between crude supply and demand.

On March 31 of this year 2,462,648 bbls. of crude oil was produced in the United States This oil came from 314,259 wells. The wells produced all the way from 5,000 bbls. down to 3.5 gallons.

Average Production Increases

Three years ago the writer made a survey of the fields similar to this one. It is interesting to compare the results of the two surveys. At that time there were 286,569 oil wells in the United States producing 1,903,966 bbls., an average of 6.64 bbls. per day per well. Now we have 314,259 wells producing 2,462,648 bbls., or 7.8 bbls. per day per well.

A careful combing of all the fields in the United States early in 1924 resulted in the discovery of 236,181 wells, the total production of which averaged only 0.79 bbl. per day per well. A survey made for present-day conditions results in finding 218,843 wells in the eastern fields, Kansas and Oklahoma, the combined production of which averages only 0.5 bbl. per well, while going a little further with the probe a total of 229,940 wells were found, the combined production of which gave them an average of less than 0.64 bbl. per day per well.

250,000 Very Small Wells

There are more than a quarter of a million oil wells in the United States, the combined production of which will not average in excess of 1 bbl. per day. These are the ones hardest hit by low prices of oil. It is true that these wells have had their day, and that they once yielded largely, but the large majority of them did so before gasoline figured prominently, if at all, in the petroleum scheme. Many of them were producing on a 40-cent or 50 or 60-cent crude market. They made no one rich but the companies that bought and stored the oil and later cleaned up large profits because the producer then, as now, was an uncontrollable and unyielding creature who wanted to see how much crude he could produce regardless of its effect on the market.

Last fall every producer in the country was or should have been making money. Now only the leases of relatively recent development are money makers. The vast majority of producing properties face a discouraging condition with no relief in sight and a constant threat of even lower prices hanging over the heads of their owners.

Some Enormous Producers

But there is no good in gloomy preaching. Let us turn to the brighter side of the picture and look over some of the big fields and make a few comparisons. Thirteen wells in the Bowlegs Pool in Township 8-6, Seminole County, Oklahoma, were averaging 2,946.1 bbls. per day per well on March 31. On the other hand the writer has in mind a lease in Pennsylvania which contains 14 wells yielding just sufficient crude to give the wells an average of 3.75 gallons of crude oil per day per well. These are extremes. The wells in Pennsylvania were drilled about 46 or 47 years ago and have been producing ever since. The wells in Bowlegs are about 4,200 feet in depth and long before they got to the 1-bbl.-a-day stage will have been abandoned because they cannot be operated at a profit at so great a depth (that is unless some genuius meanwhile discoverers a means of lifting very small production 4,200 feet with profit)

330 Wells Caused Price Slump

A mere handful of wells have upset the petroleum structure. Fifty-one wells in Spindletop, producing 60,000 bbls. a day; 13 in Bowlegs making 38,300 bbls.; 33 in Earlsboro, 35,860 bbls.; 24 in Searight, 27,700 bbls.; 229 in Seminole City, 229,220 bbls., or altogether, 330 wells, producing 391,090 bbls. per day, are enough to have caused all the recent cuts in crude, which fell so hard on the owners of very small producing wells.

Three thousand wells are producing 702,266 bbls. per day, or an average of 234 bbls. per well while on the other hand 218,843 wells are making slightly over half a barrel a day. The average well among the 218,843 old has-beens would require four years to make as much crude as one of the Bowlegs wells makes in a 24-hour period, while some ancient Pennsylvania wells would require eight years.

One-half of the oil being produced at this time comes from 6,174 wells. The other half comes from 308,075 wells.

Comparative Averages

Returning to the survey made three years ago: Oklahoma now shows an average of 11.9 bbls. per day per well from 60,645 wells. Then the average was 6.98 bbls. per well from 57,217 wells. Kansas' present-day well average is 6.2 bbls. as compared to 4.09 bbls. three years ago. Texas (including the coastal pools of southern Louisiana) has 25,384 wells averaging 23.7 bbls. per well, while four years ago in the same territory there were 15,268 wells averaging 22.3 bbls. per well. California on March 31 indicated an average production per well of 56.9 bbls. while three years ago the average was 68.8 bbls.

The average in north Louisiana three years ago was 16.8 bbls. per well and now it is 13.7 bbls. In Arkansas it has fallen from 56.7 bbls. to 29 bbls. per well. Wyoming-Montana's average of 68 3 bbls. per day per well early in 1924 has fallen to 18.1 bbls.

The accompanying tables were made up to show the pools or districts in which relatively large well averages are yet maintained in states where the general average is low. Thus states like California and others with a general average of more than 20 bbls. a day are given as a whole while in regions where both large and small averages are found the more profitable pools are segregated. The old fields of the eastern states are bunched as they all show a very low average production per well:

AVERAGE PRODUCTION PER WELL IN OIL FIELDS OF U. S.

	No. of Wells	Prod. Mar. 31 Bbls.	Average Per Well Bbls.
Kansas			
Sumner County	40	19,000	475.0
Leon-Weaver	83	2,332	28.1
Keighly	80	3,264	40.8
Teeter-Pixley	445	13,216	29.7
Seeley	484	13,431	27.8
Cowley County	359	8,875	24.5
Lyon County	81	2,786	34.4
Russell County	102	3,391	33.2
Eastern fields	12,295	9,900	0.8
Other fields	5,000	41,694	8.3
Total Kansas	18,969	118,100	6.2
Oklahoma			
Bowlegs Pool	13	38,300	2,946.1
Earlsboro Pool	33	35,860	1,086.7
Searight Pool	24	27,700	1,154.2
Seminole City	229	229,230	1,000.1
Wewoka	204	18,244	89.4
Miscellaneous (Seminole-Hughes Counties)	764	26,740	35.0
Burbank	2,000	47,015	23.5
Garber, deep sand	155	12,950	83.5
Tonkawa, deep sand	135	16,432	121.7
Sholom Alechem	138	14,500	102.5
Knox	94	6,119	65.1
Vernon	13	702	54.0
North Braman	78	6,360	81.5
South Braman	34	3,970	115.3
Thomas	19	1,596	84,0
Hubbard	59	5,748	97.4
Fox	155	3,950	25.5
Graham	316	6,223	19.7
Hambro	69	2,140	31.0
Stroud	65	1,488	22.9
Davenport	211	3,587	17.0
Otstot	59	1,652	28.0
North Cushing	125	2,312	18.5
Bartlesville	8,103	6,162	0.76
Nowata	8,943	4,739	0.53
Chelsea	4,352	1,653	0.38
Southern fields	4,308	40,271	9.3
All other fields	29,947	155,472	5.2
Total Oklahoma	60,645	721,115	11.9
Texas			
West Texas fields	354	55,443	156.6
Big Lake Field	171	26,886	157.2
Panhandle fields	1,057	120,920	114.7
Southwest fields	534	37,000	67 8
Spindletop (deep sands)	51	60,000	1,176.5
Other Gulf Coast fields	3,000	96,825	32.2
Jack County	18	580	32.5
Shackelford County	895	13,700	15.3
Throckmorton County	14	1,770	125.0
Brown County	1,120	21,765	19.4
Wilbarger County	595	13,960	23.5
North Young County	530	8,880	16.8
Mexia-Powell area	1,645	39,722	24.0
All others	15,400	104,171	6.8
Total Texas	25,384	601,622	23.7
Montana			
All fields	856	14,350	16.8
Colorado			
All fields	110	7,775	70.7
Wyoming			
All fields	3,321	61,187	18.4
New Mexico			
All fields	228	5,150	22.6
California			
All fields	11,343	645,000	56.9
North Louisiana			
All fields	3,730	51,100	13.7
Arkansas			
Smackover (heavy)	2,283	105,474	46.2
Other fields	2,240	25,775	11.0
Total	4,523	131,249	29.0
Eastern States			
All fields	185,150	106,000	0.57
Total United States	314,259	2,462,648	7.8

MORE GASOLINE DEMAND IN PENNSYLVANIA MARKET

OIL CITY, Pa., Apr. 2.—A better tone prevails at present in the gasoline market in the Pennsylvania territory. Although stocks of gasoline in this district are still very heavy there is not the amount of distress material on the market that there was for a time. There were occasions recently when tank cars were loaded with gasoline for the lack of other place to store it, but no such condition prevailed during the past week. The movement of motor fuel was improved and actual consumption has been picking up fast with good weather prevailing and many motorists taking their machines out of winter storage. Many of the refiners and jobbers of this section believe the gasoline situation is now definitely on the mend.

Kerosene prices were softer during the week. The price reduction came as a result of the volume of kerosene now in storage but the movement of this product improved. Fuel oil is not as good as it has been. Refiners have been cutting down on the amount they are using for cracking plants and some are selling the product for which with a better oil situation they would be buyers. Neutrals continue good. Cylinder stocks are unchanged and the wax market is still very weak.

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THE TAIL BECOMES THE DOG

Since the development of cracking has been the one thing that enabled the oil industry to keep pace with the demand for gasoline it is perhaps but natural that now there is an oversupply of gasoline, curtailment of cracking should appear as the remedy.

Not so long ago the industry took so little thought of where the growth of cracking was leading that it was practically overlooked in current calculations of supply and demand.

More than once The Oil and Gas Journal has thought it a duty to sound a note of warning on this point in production plans.

The historical development of cracking is so recent as to be easily remembered. In its beginning it was a mere adjunct, with nothing like the efficiency it has since attained. It was a relatively small part of the big plant but it has gradually grown until today the plant that is equipped to get the maximum amount of gasoline out of the crude has a larger investment in cracking than it has in the strictly skimming phases; in some cases three to one.

There are 330 operating refineries in the United States with a daily capacity of 3,000,000 bbls. A little less than one-half of these, including practically all the major refineries, have cracking units with approximately 1,250,000 bbls. daily capacity, and it is likely to reach 1,500,000 bbls. this year.

Of course, there are different methods of figuring costs on skimming and cracking equipment but it may safely be estimated that the present investment in cracking totals $250,000,000 at least.

This investment is probably as great as that required for the 3,000,000-barrel crude skimming capacity of the operating refineries. These figures cover the cracking and skimming units only and do not include tankage, treating equipment, boiler houses and other phases of plant construction which are a large part of the total refinery investment. The cracking phase operating at higher temperatures and pressures requires better materials and better construction, all of which is reflected in a greater investment per barrel capacity than in the strictly crude skimming operation.

This larger investment requires, of course, a correspondingly greater return. But in addition to the higher initial cost and cost of maintenance there must also be considered the factor of obsolescence which is usually set at about five years.

Still another element to be taken into calculation is the fact that the cracking phase requires a greater degree of skill acquired by long and careful training of workers with a limited supply.

Shutting down the cracking units might have seemed the obvious remedy in earlier days when cracking equipment was merely an addition to the plant but today it is the dominating factor.

Not only is the manufacturing process dominated by the cracking operation but from the sales end it actually dominates the prices of all products.

The tail has become the dog.

It is, of course, conceivable that, in a period of overproduction like the present, curtailment of cracking may be expedient where the cracking equipment is obsolescent or the plants are so situated in relation to a favorable gas oil and fuel oil market as to permit it, but as a general application it should be considered with the greatest caution.

One of the unforeseen developments from cracking was the importance it gave to fuel oil which thereby became a rival of crude.

In addition to the use of fuel oil by railroads and other large industries it became in demand by operators of cracking units as charging stock. Hence we have been hearing on so many sides that fuel oil was too valuable to be burned in competition with coal.

But if cracking is curtailed this need for fuel oil and gas oil charging stock will be reduced proportionately.

The industry, having invested hundreds of millions in equipment designed to secure the greatest efficiency, would be going back to work with equipment that represents only a small part of its investment, turning out the products which represent the lowest price all the time and which had been increased in value by the demand through cracking.

The effects of that expedient can already be seen in the Mid-Continent where, in Oklahoma, for example, with a small curtailment of cracking, the price of gas oil charging stock has dropped from 4½ to 2¾ cents within the past month. Fuel oil is also off.

Refiners with efficient cracking equipment have as good a chance for profitable operation as skimming plant operators at the present market. This adjustment of crude oil and gas oil prices is inevitable.

Four factors are thus to be considered in discussing curtailment of cracking operations. First, the overhead investment which will be rendered unproductive although the fixed charges go on; second, the expense of obsolescence; third, the difficulty of keeping a specially trained and skilled organization intact; and fourth, the breaking of the industry's market for gas oil and fuel oil.

The question suggests itself whether the proposed program should not begin the other way around and that the curtailment, when necessary, should be made in the operation of that portion of the refinery's equipment which represents only a small investment and can most simply be made responsive to fluctuations of demand.

In other words, instead of curtailing cracking, with these disadvantages and dangers, might it not be better to make the skimming operation the flexible phase of the industry, having enough fuel oil and gas oil charging stock on hand all the time for the cracking operation, with the skimming operation being curtailed when too much gasoline is being produced?

It may be said that this might react upon the producer of crude but in times of overproduction everything goes back to him anyway and whatever plan better enables the refining industry to maintain its markets ultimately most benefits the producer of oil.

The situation is unusual, with features altogether new, as this discussion of curtailment of cracking shows. In the haste to find a way out it will be well to avoid running into another dilemma. The operations of the industry have become so complicated it is only by studying every conceivable angle that the best path can be taken.

What may seem the best policy for some individual plants because of their particular circumstances may be ill-advised for general application throughout the industry. Generally speaking, the weight of the investment in cracking will require operation as much as possible throughout the year to justify the investment. When curtailment becomes necessary at any time, the adjustment, it seems, might better be made, from an economic standpoint, by more efficient rather than less efficient operation.

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COUPLINGS DOMINATE

Big Wells in Fry and Church-Fields

Completions in Brown and Crane County Areas Largest of Week. Production Gains 7,877 Bbls.

By C. D. Lockwood
Staff Correspondent, North and West Texas

FORT WORTH, Tex., Apr. 4.—The Fry Pool of Brown County and the Church-Fields Pool of Crane County held the spotlight again this week in North and West Texas, both areas having produced wells of large caliber in spite of the general condition of the crude market. As a result, daily average production jumped to 259,177 bbls., a gain of 7,877 bbls. over the figures for the previous week. And from the appearance of things in both of these fields, further gains may be expected during the next few weeks.

Winkler County also came in for favorable attention due to a curtailment of unnecessary drilling around the Gulf Production Co.'s No. 1 Hendricks which flowed at the rate of 4,000 bbls. daily last week but which had to be pinched in to 15 bbls. an hour because of inadequate storage. Only the offsets to the big well and the discovery are to be completed, according to present plans of operators in that field, and new rigs and locations announced last week have been temporarily abandoned. In the meantime, the Southern Crude Oil Purchasing Co. has started laying a 6-inch line from the pool to the town of Wickett on the Texas & Pacific Railway in Ward County, a distance of approximately 17 miles, and the Gulf Production Co. is also contemplating a line and loading rack at the same point.

Church-Fields Pool

The Church-Fields Pool of Crane County was the scene of activity which proved this pool to be probably one of the largest in all of North and West Texas. Extensions were effected half a mile to the south and more than a quarter of a mile westward, both of the extension wells giving evidence of large production. To the west, Church and Fields' No. 1 University, SE cor. SW, Section 39, Block 30, topped pay at 2,842 feet and at total depth of 2,881 feet flowed 2,352 bbls. in the 24-hour period ending Saturday morning. From noon until 5 p. m. Sunday, however, this well increased to 110 bbls. an hour. The Southern Pipe Line Co is taking 2,000 bbls. and the Humble Pipe Line Co. 1,500 bbls. daily of this production.

To the south, the Eastland Oil Co. and Collett's No. 4 University in the SW cor. NW of Section 47, topped the pay at 2,836 feet which put 200 bbls. into the tanks during the first 12 hours and 344 bbls. during the following 24 hours. This well is just in the top of the pay which is 76 feet higher than the company's No. 1, half a mile north of it.

The south offset to Eastland Oil Co.'s No. 4 is Cromwell & Jones' No. 1 University, NW cor. SW Section 47. It topped the pay at 2,809 feet and was drilled to 2,831 feet where it flowed 80 bbls. Overnight April 2, Saturday, however, it was agitated and in two successive hours Saturday afternoon flowed 51 bbls. and 59 bbls. Opinions differ as to whether or not this well has reached the big pay.

Big Well Went Dead

The big well of Simms Oil Co. and Atlantic Oil Producing Co. in the SE cor. of Section 39, their No. 2 University-A, which was completed February 19 for 8,000 bbls. from pay at 2,889-2,953 feet, went dead during the past week-end, probably due to the excessive back-pressure which had to be kept on it to hold down production. No. 3 on this lease was reported last week as having flowed 4,500 bbls. in the first 11 hours and both of these big producers have since been kept down to a total production of less than 3,000 bbls.

Eastland Oil Co. & Collett's No. 1 University was deepened Friday from 2,907 feet to 2,956 feet and responded with an output of 3,851 bbls. Saturday and 3,668 bbls. Sunday. Humble Oil & Refining Co.'s No. 2 University, offset to Simms-Atlantic No. 2-A and to the Eastland Oil Co.'s No. 1, flowed 5,005 bbls. Friday from pay at 2,880-2,910 feet. This well was reported last week. Tidal Oil Co.'s No. 1 University-F, another offset in this rich corner, flowed 2,940 bbls. at 2,857-2,948 feet.

Southern Crude Oil Purchasing Co. is building three 55,000-bbl. tanks in Section 41, Block 30, Crane County. Humble Pipe Line Co. has built a booster station in the Church-Fields Pool.

Fry Pool

The Fry Pool of Brown County was enriched by several wells making more than 1,000 bbls. McKenna and others' No. 2 Shore in Section 634, offsetting the south line of the Forsythe lease, flowed 110 bbls. an hour at 1,303-20 feet. The Texas Company's No. 1 Lowe in the SW cor. of the 320-acre lease which recently was purchased for $2,000,000, flowed 50 bbls. an hour at 1,303-30 feet. J. K. Hughes Developing Co.'s No. 1 Shore, in the NW cor. of Section 635, was flowing 25 bbls. an hour at 1,297-1,319 feet. No. 3 on this lease was completed for 2,288 bbls. last week. J. K. Hughes has made locations for Nos. 4, 5, 6, 7 and 8 on this tract. No. 4 is 150 feet east and 1,050 feet south of the NW cor. No. 5 is 1,350 feet south and 150 feet east; No. 6 is 1,650 feet south and 150 feet east; No. 7 is 150 feet south and 450 feet east and No. 8 is 750 feet east and 150 feet south of the NW cor.

In Eastland County, the Mook-Texas Oil Co.'s well, about 9 miles south of Ranger, which looked like the opening of another Ranger Pool, drilled through the sand into shale and will be deepened further. It is No. 3 Sibley, located in the SW cor. of the 50-acre tract in Lot 9, W. Van Norman Subdivision. The Desdemona sand was found at 3,067-70 feet and at that depth the well flowed at the rate of about 2,000 bbls. for a few hours but then went dead. Deepening operations revealed shale and lime in the next foot and then black lime at 3,071-77 feet. It now swabs about 60 bbls.

In the Thomas & Reynolds Pool of Eastland County, Amerada Petroleum Corp. and Thomas & Reynolds' No. 1 Ables flowed 483 bbls. Friday and 405 bbls. Saturday. This is a northeast offset to the discovery which made 653 bbls. initial in January. No. 1 Ables was shot with 80 quarts at 3,012-33 feet. Roxana Petroleum Corp.'s No. 1 Hinds flowed 375 bbls. Saturday at 2,996-3,051 feet.

NORTH CENTRAL TEXAS
Estimated Production
Week ending April 2, 1927

Ranger District—	This Week	This Week
Brown County	25,115	21,765
Callahan County	5,450	5,650
Coleman County	1,515	1,590
Comanche County	1,510	1,530
Palo Pinto County	465	460
Ranger	8,125	6,950
Shackelford County	13,265	13,700
Stephens County	10,750	10,925
Total Ranger district	66,195	62,570
Wichita Falls District—		
Archer County	29,050	29,050
Baylor County	100	100
Clay County	715	735
Cooke County	1,580	1,415
Jack County	595	580
Montague County	13,505	13,480
Throckmorton County	1,530	1,770
Wichita County	31,580	31,900
Wilbarger County	13,920	13,960
Young County	8,805	8,880
Total Wichita Falls dist.	101,380	101,870
West Texas District—		
Big Lake Field	27,157	26,886
Crane County	28,976	27,536
Crockett County	1,586	1,632
Ector County	25	35
Garza County	5	5
Glasscock County	108	0
Howard County	2,658	2,518
Jones County	2,651	2,772
Loving County	25	30
Mitchell County	4,100	4,103
Pecos County	1,580	923
Scurry County	25	30
Upton County	20,756	20,000
Winkler County	1,950	390
Total West Texas district.	91,602	86,860
Grand total North and West Texas	259,177	251,300
Increase	7,877	

WEST TEXAS COMPLETIONS

Coke County

Lipan Oil Co.'s No. 1 E. C. Rawlings was junked and abandoned at 2,736 feet.

Concho County

Marland Oil Co. and Taylor's No. 1 Sansom had 400 feet of sulphur water at 1,613 feet and was plugged as a failure.

Glasscock County

Marland Oil Co. and Texon Oil and Land Co.'s No. 1 Settles was completed for 230 bbls. on the pump at 1,235-63 feet.

Howard County

Bristow & Merrick's No. 1 A. J. Hooks flowed 92 bbls. after a shot of 40 quarts at 1,792-1,809 feet, total depth 1,825 feet. Comet Petroleum Co.'s No. 1 Otis Chalk was shot with 30 quarts from 1,810-30 feet, total depth 1,834 feet, and had 500 feet of oil in the hole as a result. It is being put on the pump. Dixie Oil Co.'s No. 1 H. R. Clay had a small show of oil at 1,765-1,820 feet but made 2 bailers of water per hour at 1,830-33 feet. Another sand was found at 1,835-62 feet which put 400 feet of fluid in the hole. No estimate of the production is available. Magnolia Petroleum Co.'s No. 1 Sloan Chalk swabbed 30 bbls. of oil and 15 bbls. of water at 1,558-70 feet and was cleaning out. No. 2 Sarah Hyman swabbed 50 bbls. at 1,600-25 feet. Marland Oil Co.'s No. 1 D. Chalk made 50 bbls. initial after a 10-quart shot at 1,702-12 feet, total depth 1,714 feet; No. 1 Chalk-C made 65 bbls. following a 10-quart shot at 1,794-1,810 feet; No. 1 Chalk-E was swabbing 175 bbls. at 1,678-88 feet; No. 1 H. R. Clay-B swabbed 45 bbls. after a 20-quart shot at 1,771-91 feet, top of pay being 1,779 feet and total depth 1,797 feet.

Marland's No. 1 Clay-C was shut down for orders at 1,890 feet; No. 1 Bryse was dry and abandoned at 3,515 feet.

Jones County

Midwest Exploration Co.'s No. 4 Thornton swabbed 176 bbls. in 12 hours at 2,505-14 feet. Muse & Robertson's No. 1 Manly was dry and plugged at 2,070 feet; Phillips Petroleum Co.'s No. 1 J. C. Mason was completed for 230 bbls. on the swab at 2,522-29 feet; No. 3 Tessie-Walling was also completed swabbing 210 bbls. at 2,520-30 feet.

Kimble County

Dixie Oil Co.'s No. 1 Harrison was dry and abandoned at 3,025 feet.

Mitchell County

Teas & Stivers' No. 1 Hardee was abandoned at 3,500 feet.

Pecos County

Mid-Kansas Oil & Gas Co. and Transcontinental Oil Co.'s No. 3 Yates-A, located 535 feet east of No. 1, was completed for 1,087 bbls. at depth of 1,000-82 feet.

Reeves County

Grisham & Hunter's No. 1 State was dry and abandoned at 3,512 feet (corrected depth).

Upton County

Dixie Oil Co.'s No. 21 Burleson, which flowed 1,060 bbls. from big pay at 2,003-05 feet, was flowing 905 bbls. at latest report. This well had its first show at 1,950 feet and started flowing at 1,979 feet. Same company's No. 22 Burleson was flowing 50 bbls. an hour at 1,968-2,012 feet, total depth being 2,015 feet.

Humble Oil & Refining Co.'s No. 3 Ricker topped pay at 2,410 feet and was shot with 30 quarts at 2,399-2,411 feet, total depth 2,414 feet. Its initial gauge on the pump was 100 bbls. Roxana Petroleum Corp.'s No. 17 Bowen swabbed and flowed 500 bbls. at 2,146-81 feet. First oil was found at 2,058 feet.

Texas Pacific Coal & Oil Co.'s No. 2 Lane-A flowed 700 bbls., 5 per cent b.s. and water, at 2,043-73 feet No. 3 Lane-A flowed 185 bbls. from pay topped at 1,933 feet while drilling at 1,947 feet No. 5 Lane-A flowed 370 bbls. at 1,957-2,009 feet and was still drilling; No. 6 swabbed 470 bbls., 1½ per cent b.s. and water, from 1,970-2,071 feet.

Brown County

Amerada Petroleum Corp.'s No. 23 J. H. Fry, made 5 bbls. of oil and 3 bbls. of water at 1,400-05 feet. Anderson & Shults' No. 1 Keller was a failure at 1,328 feet. Barbara Oil Co.'s No. 4 Willis, made 150 bbls. initial from sand at 1,359-67 feet, total depth 1,372 feet. Bands' No. 1 Robertson was a duster at 1,481 feet. Curry and others' No. 4 Newton had sand at 1,263-90 feet and made 30 bbls. after a 15-quart shot at 1,274-89 feet. J. K. Hughes' No. 3 Shore found sand at 1,291-1,314 feet and made 2,288 bbls. Humble Oil & Refining Co.'s No. 12 Hickman made 216 bbls. initial from sand at 1,227-58 feet, total depth 1,259 feet; No. 8-B Hodnett also made 57 bbls. initial from sand at 1,193-1,210 feet, total depth 1,216 feet. Mahlstedt Oil Co.'s No. 1 Chambers found dry sand at 1,320-31 feet and 1,335-45 feet and was a failure at 1,355 feet. Midwest Exploration Co.'s No. 20 Suttles was also a duster at 1,175

WEST TEXAS WILDCATS

Week Ending April 2, 1927

ANDREWS COUNTY

Company, Farm and Location—	Remarks—
Calvin & Belt's No. 1 Ratliff & Bedford, C NE Sec. 16, Blk. A-54	Location.
J. S. Cosden's No. 1 Ratliff & Bedford, C SE Sec. 8, Blk. 73, Public School Land	Location.
Sartain Oil Co. et al's (was Deep Rock Oil Co.'s) No. 1 W. J. Harris, C SE Sec. 12, Blk. A-46, Public School Land	Location.
C. B. McKennon's (was Neff et al's) No. 1 J. S. Means, C SE Sec. 12, Blk. A-35, Public School Land	Moving in material.
A. G. Carter & Zweifel's No. 1 Cowden, C SE Sec. 18, Blk. A-52, Public School Land Sur.	Drilling 1,365 ft.
Maer & Staniforth's No. 1 W. B. Taylor, C SE Sec. 15, Blk. A-42, Public School Land Sur.	Drilling 1,250 ft.

BORDEN COUNTY

J. L. Kennedy's No. 1 J. S. York, SE cor. Sec. 322, Blk. 97, H. & T. C. Sur.	Location.
Stivers et al's No. 1 Snodgrass, C NW Sec. 475, Blk. 97, H. & T. C. Sur.	Drilling 320 ft.

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Siemons, SW cor. Sec. 78, Blk. M17, B. S. & F. Sur.	Rig.
Gulf Prod. Co.'s No. 1 Clements, SW cor. Sec. 27, Blk. M-10-A, Sealy & Morris Sur.	Total depth 1,505 ft.; underreaming 8-in. to 1,490 ft.; water sand 1,435-50 ft.; total depth 1,985 ft.; underreaming 8-in. 1,955 ft.

(Continued on Page 165)

feet. Phillips Petroleum Co.'s No. 4 Hickman made 150 bbls. initial from sand at 1,240-59 feet, total depth 1,261 feet. Quinn and others' No. 2 Pugh was dry and abandoned at 1,950 feet. Shoup Jr.'s No. 12 Byler found sand at 1,279-91 feet and made 55 bbls. Sinclair Oil & Gas Co.'s No. 20 J. H. Fry had sand at 1,278-1,311 feet and made 300 bbls. No. 21 made 533 bbls. at 1,281-1,305 feet; No. 23 made 150 bbls. at 1,301-17 feet after a 10-quart shot. Superior Oil Co.'s No. 2 Broocke was dry at 1,230 feet. The Texas Company's No. 2 Byler had sand at 1,272-98 feet and made 50 bbls. Tidal Oil Co.'s No. 8 Hodnett found gas sand at 1,010-26 feet and oil sand at 1,223-35 feet and made 10 bbls., total depth 1,245 feet. Garrett & Hammon's No. 1 Starkey was a duster at 1,405 feet. Randall's No. 1 Schulze was also a failure at 1,364 feet.

Coleman County

Chestnut & Smith's No. 1 Morris was dry at 2,500 feet. Magnolia Petroleum Co.'s No. 1 Gray made 50 bbls. initial from sand at 2,470-74 feet.

Comanche County

Kirk & Brewer's No. 1 Miers had a good show of oil at 2,620-75 feet (steel line measurement but was dry and abandoned at 2,900 feet.

Eastland County

Mars and others' No. 1 Williams was dry at 1,810 feet. The Texas Co.'s No. 13 Hightower made 20 bbls. initial from sand at 1,195-1,210 feet. Adams and others' No. 2 Grove found lime at 3,840-75 feet but was plugged back to 3,859 feet (steel line measurement) and was shot with 110 quarts at 3,819-59 feet but was a failure. Amerada Petroleum Corp. and Thomas & Reynolds' No. 1 Ables made 510 bbls. initial from sand at 3,012-33 feet after an 80-quart shot, total depth 3,034 feet. Root's No. 1 Watson made 243 bbls. and is now making 90 bbls. initial from sand at 3,766-80 feet after a 130-quart shot and was plugged back from 3,900 feet to 3,785 feet. Roxana Petroleum Corp.'s No. 1 Hines made 562 bbls. initial from sand at 2,996-3,052 feet after a 200-quart shot.

Parker County

Coffin and others' No. 1 Stickford was shot with 60 quarts at 2,780-2,820 feet but was a duster at 3,050 feet.

Shackelford County

Duty's No. 1 Dyer was dry at 955 feet. Gwinnup and others' No. 1 Goodwin was also a duster. Hope Oil & Gas Co.'s No. 7 Davis had sand at 1,475-92 feet and made 120 bbls. oil and 2,000,000 feet of gas. Milham Corp.'s No. 3 Moore found sand at 2,130-50 feet and made 39 bbls. Morton and others' No. 2 Davis was a failure at 1,709 feet. Republic Production Co.'s No. 2 Myer pumped 12 bbls. at 997-1,003 feet. Ross' No. 1 Poindexter found a hole full of water from 1,494-1,500 feet but was a failure. Sinclair Oil & Gas Co.'s No. 6 Nail was dry and abandoned at 2,097 feet. Smith and others' No. 1 Swenson was also a failure at 2,265 feet. Turman & Maxwell's No. 1 Goodwin was a duster at 2,008 feet. So was Wallace's No. 1 Waters at 2,458 feet.

North Central Texas—Completions

Archer County

Consolidated Oil Co. and Burton's No. 1 Helm was dry and abandoned at 1,953 feet. L. T. Burns' No. 11 Turbeville-B, was good for 70 bbls. on the pump from sand at 1,437-66 feet. Same company's No. 2 Turbeville, on the E lease, is a 275-bbl. well from sand at 1,438-70 feet; No. 3, on the same lease, is a 260-bbl. well at 1,435-73 feet, and No. 4 is a 385-bbl. well at 1,445-75 feet. Donahoo & Johnson's No. 1 Edwards was dry and abandoned at 1,630 feet. Location has been abandoned for T. F. Hunter's No. 6 Wilson. E. B. Lawson's No. 7 Wilson is good for 32 bbls. on the pump at 1,560-64 feet. T. Lomax, Jr.'s No. 1 Wilson-D was dry and abandoned in sand at 1,507-18 feet. Petroleum Producers Co.'s No. 1 Wilson was dry and abandoned at 1,510-16 feet. Simms Oil Co.'s No. 19 Turbeville is a 245-bbl. well from sand at 1,480-1,508 feet. United Producers Co. and Petroleum Producers Co.'s No. 7 Wilson is good for 238 bbls. on the pump in sand at 1,461-74 feet.

B. S. & B. Oil Co.'s No. 1 Wilson estate was dry and abandoned at 1,601 feet. Consolidated Oil Co. and The Texas Company's No. 3 Coody was shot with 30 and 20 quarts in sand at 1,140-71 feet and had an initial production of 2 bbls. Craig and Wilson's No. 2 Longley estates was dry and abondoned at 1,007 feet. Hines and associates' No. 2 Ward was dry and abandoned at 1,015 feet. Mid-Kansas Oil & Gas Co.'s No. 8 Lowe is a 30-bbl. well in sand at 1,294-98 feet. The Texas Company's No. 3 Love, was dry and abandoned at 1,474 feet. Tidal Oil Co.'s No. 3 Farmer is a 25-bbl. well from sand at 1,468-76 feet. Underwood Drilling Co. and asociates' No. 4 Ward was dry and abandoned at 1,211 feet.

Cooke County

American Refining Co.'s No. 11 Dennis is a 20-bbl. well; oil sand was found at 1,204-28 feet and broken oil sand at 1,229-49 feet. Chapman and Lanier's No. 1 Montgomery was plugged back from 1,327 feet to oil sand at 1,310-18 feet and is making 126 bbls. of oil and 5 bbls. of water. Fain & McGaha Oil Corp.'s No. 1 Otto had oil sand at 963-67 feet and was drilled on to 970 feet and is making 27 bbls. Stroube & Stroube's No. 1 Koelzer is pumping 10 bbls. from oil sand at 1,310-40 feet, total depth 1,344 feet. Sun Oil Co.'s No. 1 Dennis is good for 18 bbls. on the pump from sand at 1,163-67 feet and broken sand from 1,167 to 1,265 feet. F. P. Zoch's No. 1 Jagelky was dry and abandoned at 2,501 feet.

Denton County

Moore & Garrett's No. 1 Hampton was dry and abandoned at 2,211 feet. Buttram Petroleum Co.'s No. 2 Preston A, is a 25-bbl. well from sand at 2,082-86 feet. Same company's No. 3 is a 30-bbl. pumper in sand at 2,072-77 feet. Eastern Petroleum Co.'s No. 4 Snidecker, is a 15-bbl. pumper in oil sand at 784-90½ feet, total depth 796 feet. Empire Holding Corp.'s No. 1-A Snedeker, was dry and abandoned at 1,010 feet.

Montague County

Atlantic Oil Producing Co.'s No. 1 Nivens, was dry and abandoned at 2,505 feet. Barnsdall Oil Co.'s No. 4 Howard, is a 45-bbl. pumper from sand at 1,330-81 feet. F. P. Cullum's No. 1 Howard, is pumping 22 bbls. from sand at 1,150-95 feet. F. H. E. Oil Co.'s No. 1 Howard-D, is making 18-bbls. from broken sand at 1,144-90 feet. Humble Oil & Refining Co.'s No. 4 Jones, was plugged back from 872 feet and is making 15-bbls. from sand at 848-71 feet, Lesh & McCall's No. 1 Cunningham, is making 40,000,000 feet of gas from sand at 588 to 898 feet. The Texas Co.'s No. 10-D Maddox, is a 45-bbl. well from sand at 939-70 feet. Richardson Brothers No. 1 Rice, was dry and abandoned at 2,505 feet.

Wichita County

Bailey Damuth Drilling Co.'s and associates' No. 6 Waggoner, is a 4-bbl. pumper at 770-76 feet. The same operators completed five other wells on their Waggoner lease. No. 7 is a 5-bbl. pumper at 577-86 feet; No. 8 is a 6-bbl. pumper at 772-78 feet; No. 9 is an 8-bbl. pumper at 771-78 feet; No. 10 is good for 4 bbls. from sand at 772-77 feet and No. 11 was dry and abandoned at 850 feet. British American Oil Producing Co.'s No. 3 Kemp & Kempner, is pumping 25 bbls. of oil and 40 bbls. of salt water from sand at 1,815-17 feet. Chenault Palmer and Burch's No. 5 Chapman, had oil sand at 1,670-77 feet and was drilled to 1,685 feet and is making 2½-bbls. on the pump.

C. H. Clark and associates' No. 1 Waggoner, is pumping 50 bbls. from sand at 1,755-61 feet. Mammon and associates' No. 1 Bradley, was dry and abandoned at 1,883 feet. Magnolia Petroleum Co.'s No. 16 Honaker was dry and abandoned at 2,095 feet. Petroleum Producers Co.'s No. 5-B Deep Love, was dry and abandoned at 1,820 feet. Shappell Oil Co.'s No. 1 Kemp & Kempner, Block 51, was dry and abandoned at 2,036 feet. Sheldon and associates' No. 2-A Frank and others, is a 100-bbl. pumper in sand at 1,646-64 feet. No. 3 on the same lease is a 41-bbl. pumper in sand at 1,647-63 feet. The Texas Company's No. 88 Stringer, is flowing 67 bbls. through 2-inch tubing from sand at 1,893-96 feet. The Texas Company's No. 323 Waggoner, is pumping 94 bbls. from sand at 1,733-43 feet.

Wilbarger County

Humble Oil & Refining Co.'s No. 20 Waggoner-M pumped 50 bbls. from 2,371-95 feet, total depth 2,399 feet; No. 10-N pumped 45 bbls. at 2,412-40 feet, total depth 2,465 feet; No. 5-0 pumped 55 bbls. at 1,952-69 feet. Magnolia Petroleum Co.'s No. 1 Minnie Waggoner was dry and abandoned at 2,247 feet. The Milham Corp.'s No. 11 Waggoner-B pumped 185 bbls. from pay at 2,537-46 feet.

Phillips Petroleum Co.'s No. 5 Waggoner-JJ flowed 70 bbls. through tubing from pay at 2,345-48 feet. Roxana Petroleum Corp.'s No. 3 Waggoner-D pumped 14 bbls. at 2,300-82 feet.

Young County

Hunter and others' No. 1 Prideaux was abandoned as a dry hole at 565 feet. King Royalty Co. & Tidal Oil Co.'s No. 29 Benson-B made 18 bbls. at 921-43 feet. Robert Oil Corp.'s No. 3 Prideaux pumped 15 bbls. from sand at 489-500 feet.

Liner Drilling Co.'s No. 1 Donnell was temporarily abandoned at 3,302 feet. Pitzer & West's No. 3 Morrison Co. pumped 70 bbls. at 2,233-40 feet; No. 1 Morrison Co.-B made 200 bbls. initial from sand at 2,235-36 feet. Schermerhorn Oil Co.'s No. 1 Thompson was cleaning out and flowing 25 bbls. from sand at 2,050-90 feet, total depth 2,263 feet.

Late News from the Fields

OKLAHOMA

Conditions which resemble Seminole City Pool have been found in the Bowlegs district of Greater Seminole. The Carter Oil Co.'s No. 1 Walker-Wise, NE cor. NE Section 23-8-6, which is a diagonal offset to the Indian Territory Illuminating Oil Co.'s No. 1 Davis, the first well in the southeast end of Bowlegs, has found the sand over 100 feet deeper than the Davis well. Carter's well had Wilcox sand 4,438-41 feet and is flowing 95 barrels an hour.

Deepening of the Amerada Petroleum Corp.'s No. 1 Rasco, NE cor. SW Section 15-8-6, failed to make any increase in output of the well which is now flowing 2,546 barrels. The new total depth is 4,219 feet and the well has been deepened 9 feet. The production has steadily been decreasing.

Indian Territory Illuminating Oil Co.'s No. 5 Goforth, NW cor. SW NE Section 15-8-6, a location north and a location east of the same company's No. 1 Livingston, made 2,970 barrels the first 24 hours from Wilcox 4,132-46 feet.

Magnolia Petroleum Co.'s No. 1 Holmsley, SW cor. NE SE Section 11-9-5, is the well which has caused considerable interest in territory east of the Earlsboro Field. It had Wilcox sand 4,278-86 feet and is flowing 190 bbls. an hour. This well evidently opens a new pool, as it has been thought that the Wilcox sand is running low in Section 10 and the new well is east of two Wilcox failures found in that section. The Holmsley well is 2 miles from present limits of the pool.

To the northwest of Earlsboro, the Phillips Petroleum Co.'s No. 3 Gram, NW cor. SW SE Section 9-9-5, is flowing 96 barrels an hour from Wilcox 4,317-23 feet.

Empire Gas & Fuel Co.'s No. 1 Lacey, SE cor. NW SW, Section 14-8-6, has been drilled 3 feet deeper to a total depth of 4,061½ feet and responded with an increase of 400 barrels making 6,235 barrels the past 24 hours.

The Greater Seminole Field made 332,360 bbls. for the 24 hours ending 7 a. m. Tuesday of this week.

GULF COAST

HOUSTON, Tex., Apr. 5.—Yount Lee Oil No. 9 Gladys, Spindletop, has been abandoned at 6,300 feet. Rio Bravo Oil Co.'s No. 3 Settegast, Pierce Junction, is flowing 1,200 bbls. at 3,540 feet. It extends production 600 feet south. Tillery Oil Co.'s No. 2 Cow Bayou, Orange Pool, is flowing 1,200 bbls.

NORTH LOUSIANA

SHREVEPORT, La., Apr. 5.—Oil production in The Texas Company's No. 5 Herndon, Pine Island, which blew in a week ago making an estimated 30,000,000 feet of gas and 500 bbls. of oil has ceased and the well is spraying from 300 to 400 bbls of salt water. Although the fire was put out Saturday the well still is blowing out of control.

NORTH AND WEST TEXAS

FORT WORTH, Tex., Apr. 5.—A new deeper pay was uncovered in Muenster Pool, Cooke County, by Oil Operators Trust Co.'s No. 2-A Kleiss at 1,585-97 feet which swabs 400 bbls of 29 gravity crade. This well failed to make a commercial producer in regular 1,300-foot pay. Same company's No. 1-A is being deepened and also its No. 4 Kleiss on joint interest tract about 500 feet west. This is several times the best well in the Muenster Townsite Pool and will cause a new drilling campaign.

In Mitchell County, Walter and others' No. 1 Dollen, five miles northwest of Colorado, is shut down at 3,955 feet with hole full of sulphur water. In Jones County Midwest's No. 3 Thornton swabbed 75 bbls. the first 12 hours at 2,505-29 feet.

In Winkler County, Independent Oil & Gas Co.'s No. 1 Hendricks still has no salt at 2,500 feet.

In Gray County, about 2 miles south of Pampa Pool, Blackwell & McGees' No. 1 Bowers, SE cor., Section 92, Block B-2, has 900 feet of oil in the hole from granite wash 2,946-49 feet. This well is in a locality formerly considered on crest of granite ridge. Surface elevation is 3,099 feet, making the pay 53 feet above sea level. The first show was 2,715 feet or 384 feet above sea level and 45,000,000 feet of gas was found at 2,770-2,835 feet.

In Hutchinson County, Bain and others' No. 1 Moore, Section 125, Block 4, which flowed 550 bbls. the first 24 hours after a 360 quart shot at 3,013-25 feet stopped flowing due to lack of gas and is estimated a 100-bbl. pumper.

BOND ISSUE BY HUMBLE FOR M'CAMEY-GULF LINE

The $25,000,000 bond issue just placed by the Humble Oil & Refining Co. is to be used in providing funds for the construction of additional pipe line facilities in the Panhandle and west Texas areas and for the construction of a trunk pipe line of 40,000-bbl. capacity from McCamey, Upton County, Texas, to Corpus Christi on the Gulf Coast, a distance of about 400 miles.

It is understood the intention is to prepare the financing in case this construction becomes necessary, the future depending on west Texas developments. No survey has yet been made. Declines in the Mirando section and failure to get deep sands would make it necessary that traffic be secured for the Corpus Christi line by extension of the line to McCamey.

TO DISCUSS OIL BILL

A meeting of oil and gas producers in Oklahoma is called to be held at 505 Cosden Building, Tulsa, at 2 p. m. Friday, April 8 to discuss the latest Campbell Russell bill and suggest ways and means of conducting an educational campaign against it.

Oil City Completions Panhandle's Best

Prairie Well Starts With 2,540 Bbls. After 34 Hours Drops to 67 Barrels an Hour

By James H. Dameron
Staff Correspondent, Texas Panhandle Fields

FORT WORTH, Tex., Apr. 4.—Further curtailment of field operations in the Panhandle, a further decline of production of that area and significant lease and production trades there presented a part of the week's activities while numerous wildcats and sensational wells rounded out the high spots in the week's summary.

Most significant of the wildcats and the one drawing the gallery of wildcat followers was Marland Oil Co.'s No. 1 Carver, NE cor. William Heath Survey and northwest of Hutchinson County production. After making an encouraging showing the well's show flared and fizzled when salt water was drilled into. The well was making 10,000,000 feet of gas from 3,250 feet. At 3,270-97 feet the well made 3,000,000 feet of gas and at 3,300-16 feet it started making salt water. Last reports from the well were that it is spraying 15 bbls. of salt water and is shut down for orders.

Considerable interest is being evinced in a well near the Roxana Pool in Carson County. West of production a quarter of a mile Marland Oil Co.'s No. 1 Garner, NE Section 93, Block 4, topped the pay in lime at 3,110 feet and bored into it 5 feet, corrected depth. The well made 600 bbls. natural the first 12 hours. Southwest of the Roxana Pool, Hughes Development Co.'s No. 1 Percival, Section 199, Block 3, and near the Parks well, is spraying 25 bbls. of oil daily. The pay is from lime and granite wash at 3,190 to 3,220 feet and the oil is 44 gravity at 62. The bottom of the hole is 70 feet above sea level.

Oil City Sector

The Oil City Sector in southwest Hutchinson County and north of the Canadian River, threatens to become an area of prominence. Prairie Oil & Gas Co.'s No. 3 Cal Merchant, SE part Section 37, Block 47, topped the lime pay 2,705 feet and at 2,749 the well was flowing. The first 24-hour gauge showed its production to be 2,540 bbls. After flowing steadily for 34 hours the well's output decreased to 67 bbls. per hour. No. 2 Cal Merchant topped the pay at 2,698 feet with an increase at 2,740-45 and another increase at 2,760-89 feet in lime. It swabbed 100 bbls. the first day and it is to be shot. The formation in No. 2 appears to be tight. No. 3 Merchant is the biggest well yet completed in that area since it was opened late in 1926.

In the Shamrock area Continental Oil Co.'s No. 2 W. C. Company, NW cor. SW Section 11, Block 27, averaged 725 bbls. the first two days at 2,230-76 feet. The first pay was found at 2,230-35 feet and the well sprayed 25 bbls. a day. The big pay was in granite wash and sandy lime at 2,265-76 feet and the first gas was found at 2,195 feet.

Another sensational well was Marland Oil Co.'s No. 1 J. M. Sanford, 330 feet from the north line and 330 feet from the east line of the N half S half S half, Section 80, Block 46, Hutchinson County, which was completed at 2,165-2,610 feet making 110,000,000 feet of gas. The first show of gas was found at 2,165 feet and more gas was found at 2,330 feet. The showing increased to 10,000,000 feet at 2,570-2,600 feet. The big gas was found in the next 10 feet of drilling. The well is on the south side of the river west of the Borger area.

The tools were blown out of the hole when the well blew in. The well is about a mile southeast of producing well that produces from a lower horizon. No. 1 Sanford has been closed in and probably will not be drilled deeper until the crude market is tighter. Other gas wells have been drilled in adjacent territory and some there have an open flow capacity nearing 200,000,000 feet.

Operations Decline

Curtailment of Panhandle operations is beginning to show and first reports from that area have taken a sharp drop. Phillips Petroleum Co. and Prairie Oil & Gas Co. have taken the lead in curtailment of operations in Panhandle. The Phillips Co. has shut down 20 wells or abandoned rigs during the past week while the Prairie's shutdowns and abandonments total 15 for a similar period. A few other wells have been shut down by agreement.

A further drop is expected when present drilling wells are completed and a gradual drop in field operations is looked for until that time. At the end of the past week a summary of the field revealed 350 wells drilling; 47 shut down; 59 temporarily abandoned; 18 being rigged; 30 rigged; 6 derricks being built; 34 locations carried over from the previous week's report and 7 first reports.

Production of Panhandle showed a daily average loss of 2,780-bbls. during the past week, making the daily average production of the field 117,800 bbls. Hutchinson County declined 3,185 bbls. with the production of the Phillips Petroleum Co. off 1,950 bbls. and the production of the Prairie Oil & Gas Co. off 500 bbls. A majority of Panhandle producers showed a decline in their production during the week, although ideal weather has prevailed in that area. Carson County gained 315 bbls. in production and Gray County declined 355 bbls. while Wheeler County production was up 450 bbls.

According to those in close touch with Panhandle conditions, small producers are pessimistic concerning the present crude situation. The decline in production in many instances is traced to operators not cleaning out the paraffin in producing wells to increase their production. In that manner operating expenses are reduced to some extent and the wells are not being produced to capacity until the crude situation is stronger.

Marland-McMan Deal

However, buying of Panhandle producing properties is not on the wane. Marland Oil Co. sold a one-half interest in its Merchant lease, Section 38, Block 47, which covers a whole section. The half-interest was sold to the McMan Oil & Gas Co. It has two producing wells on it making around 700 bbls. daily and another drilling. The buyer agrees to drill seven wells free of cost to the Marland Co. in addition to a cash consideration.

As part of its retrenchment policy in Texas the Marland company has closed its land office in Amarillo and moved the Panhandle land headquarters to the Wichita Falls district.

Fly-Blackburn Oil Co. sold its 40-acre lease to Maupin and others, half cash and half oil, the purchase price not given. The lease is the NE SE Section 19, Block Y, Hutchinson County, and has two wells doing 75 bbls. daily. Two more wells are to be drilled on the lease. Canyon Oil Co. bought the Julian Petroleum Co.'s 40-acre lease, SW SW Section 12, Block Y, Hutchinson County, for a reported purchase price of $150,000 cash and $150,000 in oil. The lease has five producing wells making 750 bbls. daily. Bartex Pipe Line Co. (Phillips Petroleum Co.) is reported to have leased 500,000 bbls. of empty steel storage from the Plains Pipe Line Co.

The first oil to leave the Panhandle for the Gulf Coast is expected to be run through the Gulf Pipe Line Co. and Magnolia Pipe Line Co.'s joint Panhandle-Coast line April 15. All of the pipe has been laid by both builders and most of it has been buried. Both sections of the line are being tested at present. The Gulf company's half of the line is a screw line and the Magnolia company's half is a welded line. Both lines are 10-inch lines. Humble company's line is also being tested.

TEXAS PANHANDLE COMPLETIONS

Carson County

Magnolia Petroleum Co.'s No. 3 Burnett estate, Section 115, Block 5, was abandoned at 2,975 feet. Same company's No. 4 fee, 244, Section 90, Block 4, is an abandoned location. Marland Oil Co.'s No. 1 R. C. Garner, Section 93, Block 4, topped the pay in lime at 3,110 feet and penetrated it 5 feet. The well was completed making 450 bbls. natural. McMan Oil & Gas Co.'s No. 5 E. F. Bryan, Section 107, Block 4, topped the pay in lime at 3,125 feet and was drilled to 3,225 feet and is making 450 bbls. daily from granite wash and lime. Nunn and McAuley's No. 3 E. F. Bryan, Section 107, Block 4, had the pay in granite wash and lime at 3,203 feet and was penetrated only 3 feet. The well was put on the pump and is good for 120 bbls. daily. Roxana Petroleum Corp.'s No. 1-C E. F. Bryan, Section 107, Block 4, in the Roxana-Bryan Pool, got the pay in lime and granite wash at 3,189 to 3,240 feet and was completed as an 1,800-bbl. well after a shot. Location was abandoned for The Texas Company's No. 3 M. P. Co. Fee.

Collingsworth County

Martin and associates' No. 1 T. V. Smallwood, Section 30, Block 16, was spudded and temporarily abandoned.

Hutchinson County

Prairie Oil & Gas Co.'s No. 3 Cal Merchant, Section 34, Block 47, in the Oil City area, was the biggest completion in Panhandle during the week. It flowed 2,540 bbls. the first 24 hours. The pay was topped at 2,705 feet and the showing increased at 2,740-45 feet. The well started to flow at 2,745 feet and is producing from lime 2,749 feet; total depth 2,752 feet. Prairie Oil & Gas Co.'s No. 44 Johnson Brothers "A," Section 4, Block B-4, topped the pay in lime at 2,808 and was drilled to 2,900 feet and completed as a 385-bbl. well. Dixon Creek Oil Co.'s No. 45 H. E. Smith and others, Section 11, Block Y, had the pay rt 2,793-2.880 feet and was completed with an initial production of 390 bbls. Location was abandoned for Manhattan Oil Co.'s No. 3 Johnson Brothers. Marland Oil Co.'s No. 1 J. M. Sanford, Section 80, Block 46, H. & T. C. R. R. Survey, was completed as a giant gasser, making 110,000,000 feet of gas from 2,600-10 feet. The first show of gas was found at 2,165 and increased as the bit went lower. A 30-quart shot failed to help Marland Oil Co.'s No. 7 J. A. Whittenburg, Section 80, Block 46, which had the pay in lime at 2,826-33 feet and was good for 130 bbls. initial. The well was shot in lime at 2,824-33 feet and completed as a 100-bbl. well.

Locations Abandoned

Five locations were abandoned by the McIlroy Oil Co., being Nos. 4, 5, 6, 7 and 8 on the E. Cockrell lease. Location was abandoned for Midwest Exploration Co.'s No. 5 Johnson Brothers. Midwest Exploration Co.'s No. 4 J. A. Whittenburg, Section 13, Block Y, was shot with 110 quarts in lime at 2,986 to 3,030 feet and is swabbing 50 bbls. daily. The rig was abandoned for Phillips Petroleum Co.'s No. 4 Johnson Brothers, Barnum. Same company abandoned the rigs for the following tests on the Johnson Brothers' ranch. No. 6 Graham, Tract 5, M. Whitley Survey; Nos. 2 and 3 Walling, M. Whitley Survey, and No. 4 Williams, Tract 7, M. Whitley Survey. Phillips Petroleum Co.'s No. 8 W. L. Kingsland, Section 6, Block B-4, was good for 25 bbls. in lime at 2,890-2,914 feet but was shot with 60 quarts in that formation and completed as a 75-bbl. well.

Phillips Petroleum Co.'s No. 6 J. A. Whittenburg, Burg. Lot 10, M. Whitley Survey, was shot with 90 quarts in lime at 2,914-46 feet and is making 225 bbls.; total depth 2,950 feet. Same company abandoned the rigs for Nos. 17 and 22 J. A. Whittenburg, Patton, M. Whitley Survey, and location for No. 1 J. A. Whittenburg-Roy Phillips Co., also abandoned locations for Nos. 3 and 4 J. A. Whittenburg-Tinnie, Section 71, Block 46. Phillips comany's No. 6 J. A. Whittenburg, on the same lease, was completed in lime at 2,900-16 feet, making 500 bbls. naturally. Phillips Petroleum Co. and Coble Oil Co.'s No. 20 J. A. Whittenburg, Section 12, Block Y, was abandoned at 400 feet. Same operators' No. 26 J. A.

(Continued on Page 168)

WILDCAT OPERATIONS IN PANHANDLE

Week Ending April 2, 1927

Company, Well, Farm Name, Section and Block—	Remarks—
ARMSTRONG COUNTY	
United Oil & Trust Co.'s No. 1 J. P. Reck, Sec. 162, Blk. 4, H. & G. N. Sur.	Spudded and shut down.
BRISCOE COUNTY	
C. S. Rice's No. 1 J. C. Anderson, SE cor. NW NW Sec. 23, Blk. B-3, B. S. & F. Sur.	Drilling 1,250 ft.
Smith & Baker's No. 1 J. W. Owens, Sec. 11, Blk. GC2	Location.
CARSON COUNTY	
Amatex Oil Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 3-Y	Shut down 1,980 ft.
Champlin Ref. Co.'s No. 2 E. F. Bryan, Sec. 92, Blk. 4	Drilling 3,180 ft.
Delmar Oil Co.'s No. 1 T. D. Lewis, SW cor. Sec. 115, Blk. 4	Topped pay 3,184-90 ft.; flowed 140 bbls. first 24 hours; to drill deeper.
Empire G. & F. Co.'s No. 1 Burnett-B	Rig
Empire G. & F. Co.'s No. 1 Burnett-C	Fishing for tools 90 ft.
Empire G. & F. Co.'s No. 1 C. R. Garner	Drilling 730 ft.
Empire G. & F. Co.'s No. 2 M. P. Co. fee-A, NE cor. SW Sec. 91, Blk. 4	Drilling 2,912 ft.; top lime 2,278 ft.
Empire G. & F. Co.'s No. 3 M. P. Co. fee-A, SE cor. SW Sec. 91, Blk. 4	Drilling 1,215 ft.
Gulf Prod. Co.'s No. 1 Noel, SE cor. SW Sec. 198, Blk. 3	Fishing for bit 2,805 ft.
J. K. Hughes Developing Co.'s No. 1 F. E. Percival, NE cor. E ½ NW Sec. 199, Blk. 3	Spraying 15 bbls. 3,190 ft.; drilling lime and granite wash 3,224 ft.
J. K. Hughes Developing Co.'s No. 2 F. E. Percival, NW cor. E ½ NW Sec. 199, Blk. 3	Fishing for tools 1,050 ft.
Marland Oil Co.'s No. 1 Burnett-J, C NE NE Sec. 121, Blk. 5	Drilling 1,855 ft.
Marland Oil Co.'s No. 2 J. W. McConnell	Spudding.
Marland Oil Co.'s No. 2 C. R. Garner, Sec. 198, Blk. 3	Drilling 1,740 ft.
Marston Oil Co.'s No. 1 J. L. Noel	Drilling 2,270 ft.
McMan O. & G. Co.'s No. 1 J. L. Noel, SW cor. SE SE Sec. 198, Blk. 3	Drilling 2,830 ft.
McMan O. & G. Co.'s No. 1 F. E. Percival, NE cor. W ½ NE Sec. 199, Blk. 3	Drilling 3,015 ft.

(Continued on Page 164)

[DUNN TOOLAGRAM]

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Louisiana Salt Domes Cause Activity

Discovery of Humble in East Texas Starts Leasing Campaign in Different Parishes Across the State Line

By Neil Williams
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Apr. 4.—Attributed directly to the recent bringing in of the Humble Oil & Refining Co.'s No. 1 Elliot in Cherokee County of east Texas, an active leasing campaign is on in salt dome regions of north Louisiana. This was by far the most important development in north Louisiana and Arkansas oil fields not only the past week but also in several months.

The Humble well, which came in for a production of around 2,000 bbls. daily, is on an island salt dome and immediately turned the attention of north Louisiana operators to possibilities in their own state previously discounted as unfavorable.

The Humble Oil & Refining Co. and the Gulf Refining Co. are particularly in the limelight for their initiative in seeking to lease acreage in salt dome areas of north Louisiana but practically all other companies, large and small, were scrambling the past week to get together substantial blocks.

Parishes Showing Activity

This salt dome leasing is focussing the attention of operators here chiefly to Winn, Bienville and Natchitoches Parishes in the southern part of north Louisiana. Salt dome and saline formations are especially prevalent in that area and offer a wide field for wildcat development

As a result acreage in those three parishes which three weeks ago was worth very little and condemned almost generally as a likely oil possibility has soared in price and virtually all of it has been taken up. Terms ranging as high as $15 an acre for 10-year paid-up leases were reported during the week.

It is the opinion of the majority of operators here that there will be no immediate actual development of this salt dome acreage. Most of the blocks assembled are commercial leases only with no annual rentals. General oil conditions have influenced the opposite trend in the north Louisiana-Arkansas district, that is, a slackening of operations rather than any tendency to open new fields for drilling.

Crude Oil Is "Tight"

As far as the oil situation locally is concerned there is little about which to be discouraged. Crude is "tight" with refineries of this district having difficulty in obtaining an ample supply on which to operate. But the large production in other parts of the Mid-Continent is having a paralyzing effect on drilling.

In field developments in the north Louisiana-Arkansas district the past week, the blowing in of The Texas Company's No. 5 Herndon, Section 14-21-15, Pine Island, was the most important. This well blew in unexpectedly last Monday night and caught fire, burning all week until Saturday afternoon when it was smothered out by steam after preparations had been made to shoot it.

This well is of importance because of the Trinity horizon from which it comes. It will be an indication of the oil possibilities of the Trinity formation. The well blew in from 3,590 feet and is estimated to be making around 30,000,000 feet of gas and 500 bbls. daily of light gravity oil.

The well still had not been placed under control Sunday and the heavy drain of gas all week had a noticeable effect on other wells in the district in the way of decreased production and pressure. The Gulf Refining Co.'s No. 12 Tyson in the same section, which had been flowing up to 600 bbls. daily of oil, has stopped making anything but dry gas.

A Peculiar Producer

The latter well has been peculiar. It was completed early in August of 1926 as a 42,000,000-foot gasser. On February 5, this year, it started flowing some oil, making 38 bbls. the first day. This oil production has been increasing steadily each day until the past week, making as high as 600 bbls. daily. Since The Texas Company's well started blowing wild the oil production in the Gulf's No. 12 Tyson has dropped entirely off. The total depth of this well is 3,819 feet, or 229 feet deeper than The Texas Company's well.

The Pine Island gas well fire somewhat overshadowed the interest which oil operators have had in two wildcat areas, the Carterville district of nothern Bossier Parish and the Pleasant Hill district of north Sabine Parish. However, of concern is the setback which the former area received as a possible oil field with the bailing of the Bethany Oil & Gas Co.'s No. 1 Dodson, Section 16-23-12, late Saturday as a 38,000,000-foot gas well.

This is the first well to be brought in in that area since the completion of the Woodley & Collins and Atlantic Oil Producing Co.'s No. 2 L. & A., Section 14, flowing 200 bbls. of fluid, 80 per cent salt water, daily. Other wells brought in there have been large gas producers but the Woodley & Collins' well did not run true to form and made oil with but little gas.

The Bethany well is to the northwest and in line with the expected trend of oil production, the Woodley & Collins' well having been thought to have been an edge well of an oil pool.

The Bethany well had an oil showing and is flowing from the same depth, 3,089-91 feet, at which the other wells have been completed. The Louisiana Oil & Refining Co.'s No. 1 Blanton, Section 23, to the southwest, was to have been bailed in late Monday and may throw additional light on the oil possibilities there.

Pleasant Hill District

In the Pleasant Hill wildcat district, the Arkansas Fuel Oil Corp.'s No. 3 Logan, Section 33-10-12, still has not been tested. In the meantime, No. 4 Logan in the same section has had the 6⅝-inch casing cemented at 3,155 feet preparatory to testing, as has the No. 5 Logan at 3,108 feet in Section 28.

Some irregularity has been encountered by the Ohio Oil Co.'s No. 1 Cook Land Co., Section 34, by not finding the sand at the depth found in the Arkansas Fuel Oil Corp.'s tests and from which the latter company's No. 1 Logan has been producing. The Ohio's test is 100 feet deeper. The No. 1 Logan, the discovery well, has declined in production until it now is making only 177 bbls. daily.

Of interest in Arkansas is the Louisiana Oil Refining Corp.'s No. 3-B Murphy, Section 9-16-15, Union County, which is in the new fourth sand level of the Smackover Field. The sand at 2,734 feet tested dry with a show of oil and gas but the liner was pulled and the hole drilled to 2,738 feet where arrangements are being made to make another test.

North Louisiana operators also are watching the Amory district of northeastern Mississippi, where two more drilling rigs are en route for tests. The Brummitt-DeMontrond test, to be drilled by the Natural Gas & Fuel Corp. of El Dorado, Ark., in Section 22-15-17, is being spudded in the Amory Petroleum Co.'s Hall, Section 8-13-17, is down 1,780 feet and the Dill test, Section 12-13-18, is drilling with cable tools. The Quincy test in Section 29-13-17, is down 1,700 feet.

Production Steady

There were 24 completions in the north Louisiana-Arkansas district the past week of which only three were abandoned wells. There were 31 completions the previous week. Production continued virtually steady showing a gain of only 120 bbls. in the daily average output.

Production by fields was:

North Louisiana	
Caddo light	10,320
Caddo heavy	4,200
Homer	5,290
Haynesville	7,920
DeSoto-Red River	4,235
Elm Grove	650
Bellevue	1,600
Cotton Valley	6,100
Urania	11,000
Total	51,315
Arkansas	
El Dorado	6,190
Lisbon	4,550
Smackover, light	11,670
Smackover, heavy	98,230
Stephens	1,350
Nevada	1,720
Bradley	200
Total	123,910
Total both states	175,225
Total last week	175,105
Gain	120

Bossier Parish

Operations in proven fields of Bossier Parish were more or less routine during the week. In the Elm Grove district, Gulf Refining Co. cemented 4½-inch casing at 1,865 feet in No. 6 Hodges, Section 24-16-12. Palmer Corp. is preparing to abandon No. 3 L. & L. Co., Section 9-16-11, at a depth of 3,832 feet. The Texas Company cemented 6-inch casing at 1,545 feet in No. 14 Caplis, Section 24-16-12.

In Bellevue, Humble Oil & Refining Co. has started drilling No. 30 Bliss & Wetherbee, Section 15-19-11, and is at 186 feet.

Caddo Parish

Caddo Parish led all fields of north Louisiana and Arkansas in number of completions with 10 reported, only 2 dry. The principal well was The Texas Company's No. 5 Herndon, Section 14-21-15, which blew in unexpectedly and caught fire. It is estimated to be making 30,000,000 feet of gas and 500 bbls. of oil daily from sand at 3,590 feet. The same company also completed No. 6 Curtis, Section 14-20-16, at 2,209 feet as a 900-bbl. flowing well, and No. 56 Harrell, Section 4-21-16, pumping 15 bbls. from 2,408 feet. In Section 18-21-15, J. W. Burton has a 5-bbl. pumping well in No. 15 Banker at 1,050 feet; Double I Oil Co., a 10-bbl. pumper in No. 9 Spell, Section 15-21-15; Lewis Oil Corp., a 15-bbl. pumper in No. 9 Caddo M. L. Co., Section

AGWI COMPANIES SOLD MEXICAN PROPERTIES TO MEXICAN ATLAS

By George Blardone
Staff Correspondent, Mexican Fields

TAMPICO, Mexico, Apr. 2.—With 23 wells completed in the past week in Mexican fields, 8 can be placed in the production column and say 15 are failures. Of the 8 producers, all of which are in the north fields, some 6,875 bbls. initial production can be added to the production column. Referring to the one completion in the south fields (Huasteca Petroleum Co.'s No. 96 Tierra Blanca) suffice it that it was turned to the production department at 2,166 feet, a rather deep hole, and has not yet been tested.

The wells that were producers belong principally to Mexican Petroleum Co., in the Ebano sector of the northern fields. Its No. 60 Midway is rated good for 2,500 bbls. at 1,740 feet; its No. 26 Mendez is good for 500 bbls. at 1,935 feet; its No. 137 East Dicha is good for 700 bbls. at 1,710 feet; its No. 69 Chijol is good for 2,500 bbls. at 1,680 feet. In the Cacalilao sector, La Corona Petroleum Co.'s No. 194, Lot 1, is good for 100 bbls. at 2,130 feet. East Coast Oil Co.'s No. 234 Halcon, Panuco, is 25 bbls. at 1,940 feet. Mexican Sinclair Petroleum Corp.'s No. 142, Lot 2 Cacalilao, is 150 bbls. at 1,775 feet. Cia. Pet. Franco Espanola, No. 94 Limon (Marland) is 400 bbls. at 1,790 feet.

Northern Field Failures

The northern field failures follow: Mexican Sinclair Petroleum Corp.'s No. 175, Lot 2 Cacalilao, is a failure at 1,941 feet. Mexican Petroleum has a dry hole in its No. 35, Lot 1 Cacalilao. In its No. 135 East Dicha it drilled into salt water at 1,902 feet; in its No. 33 Pedro it has a duster at 2,160 feet; in its No. 58-V Caracol it has the same at 2,790 feet. New England Fuel Oil Co. (Magnolia) has a dry hole in its No. 34 Piazzi (Panuco) at 1,830 feet. Transcontinental Petroleum Co., has a dry hole in its No. 34-A Las Delicias (Panuco) at 1,860 feet. Franco Espanola (Marland) has a dry hole in its No. 87 Limon at 2,600 feet. Globe Petroleum Co. has shut in its big gasser, No. 9, Lot 80, Quebrache, which is southeast of the Topila Field, at 3,076 feet (San Felipe), where it has had a fishing job for some time. What the well will do remains to be seen. National Oil Co.'s No. 9, Lot 83, Quebrache, drilled into salt water at 3,282 feet, showing, however, some 15 feet of gas.

National Lines' No. 63 Conteca, on its right of way, is dry at 2,553 feet; its Altamira wells, which means on the banks of the Tamesi River (Federal zone) show the following: No. 66 is dry at 2,010 feet; No. 75 is the same at 2,060 feet In the same district, Rich Mex Oil Co.'s No. 14-B, Lot 26, is dry at 2,250 feet.

Agwi Sells Out

Agwi companies, which means the Atlantic Gulf Oil Corp., as it is known in the States, quits the game in Mexico by virtue of a sale to the Mexican Atlas Oil Co., the parent company of which is in New York. The Awgi companies had some 2,700 bbls. production in the south fields, which was purchased some two years or more ago, by Mexican Eagle Oil Co., Ltd., at a price reputed to be $1.37½ cents the barrel delivered Mexican Eagle's station at Los Naranjos, near the Agwi's production point. Mexican Atlas has some production in the northern fields. The latter company is taking over the entire Agwi holdings, and is assuming this contract. Agwi's terminal at Port Lobos has been dismantled for some time. It is related that the deal was based on the retirement of some $2,500,000 worth of Agwi bonds. Agwi has been drilling in Laguna de Tamiahua on a joint agreement with Mexican Eagle Oil Co., Ltd., for some time. It recently

(Continued on Page 138)

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24-22-15, at 1,070 feet; Standard Oil Co., 45 bbls. at 1,833 feet in No. 177 Stiles, Section 33-21-16, and Woodley Petroleum Co. 15 bbls. at 1,691 feet in No. 3 Muslow, Section 32-21-15. Murphy and associates abandoned as dry No. 1 Youree, Section 13-20-15, at 2,304 feet, and Louisiana Refrigerator Products Co. junked No. 1 fee, Section 2-17-14. The latter originally was drilled as a water well to 938 feet and was deepened to 2,500 feet for gas.

In the Waskom district, Bahan & Bahan have completed the derrick for No. 1 Wilburn, Section 4-17-16. Same operators have a rig up for No. 2 Wilburn in the same section. In Section 5, the Owl Oil Co. has a rig up for No. 1 Bell. The Standard Oil Co.'s No. 1 Tresper, Section 34-18-16, is drilling gummy shale at 2,680 feet.

L. A. Berston is drilling at 930 feet in No. 6 Murff, Section 12-21-16. Empire Gas & Fuel Co. in Section 31, cemented 15½-inch casing at 20 feet for a deep test. Galloway and associates tested salt water at 2,300 feet in No. 1 Smith, Section 15. In Section 33, the Standard Oil Co.'s No. 178 Stiles is waiting on a standard rig at 1,838 feet. Same company in same section is starting No. 181 Stiles.

In the 20-16 area, Bethany Oil & Gas Co.'s No. 1 Offenhauser, Section 1, is drilling at 2,190 feet. Burford and associates are at 2,100 feet in Section 2 with No. 1 Dumbley. W. W. Dobson and associates are bailing to test No. 4 Rives at 1,873 feet, Section 5. Gulf Refining Co. cemented 6⅝-inch casing at 2,141 feet in No. 266 Ferry Lake, Section 29, and also in No. 267 Ferry Lake at 2,140 feet, same section. Same company also has a location for No. 268 Ferry Lake in Section 22 The Texas Company is bailing No. 1 Hardy, Section 10, at a depth of 2,282 feet.

Falcon Drilling Co. completed the derrick for No. 1 Schmidt, Section 27-20-15. In Section 8, Magnolia Petroleum Co. cemented 4½-inch casing at 2,910 feet in No. 2 Caddo. Same company in Section 6 is waiting on a standard rig for No. 17 Doan-Thigpen at 1,620 feet. M. I. Morgan is drilling at 1,650 feet in No. 8 Glassell, Section 10.

In 21-15, the Dixie Oil Co. is coring at 3,641 feet in No. 2-A Noel, Section 13, and in No. 81 Robertshaw, same section, is trying to get returns with the hole at 3,739 feet. Dixie also is starting No. 86 Robertshaw, Section 14. It drilled out the 12-inch plug at 56 feet and is at 400 feet. No 10 Slattery, Section 27, is being cored at 3,834 feet. Double I Oil Co. has rigged up No. 10 Spell; Section 15, and waiting orders. In Section 14, Gulf Refining Co. is rigging up No. 13 Tyson. Magnolia Petroleum Co. perforated the casing at 1,660 feet in No. 16 Dillon, Section 24; total depth of this hole is 1,750 feet. Same company cemented 6⅝-inch casing at 109 feet in its No. 20 Dillon, Section 23. No. 24 Robertshaw in same section is being drilled in lime at 3,023 feet. The Texas Company's No. 47 Caddo M. L. Co., also in same section, is being reamed to the bottom at 3,626 feet. The drill stem has stuck at 3,143 feet in The Texas Company's No. 5 Hicks & Payne, Section 21 Thomason's No. 7 Muslow, Section 31, is drilling at 2,180 feet.

Big Lake Oil Co.'s No. 1 Rodessa, Section 23-23-16, is shut down at 3,003 feet waiting orders. Gilliam Syndicate cemented the 6-inch casing at 680 feet in No. 1 Taylor, Section 17-21-14. In Section 7, Magnolia Petroleum Co.'s No. 4 Planters is drilling in shale at 2,167 feet.

A. C. Glassell is drilling at 600 feet in No. 1 Thigpen & Herold, Section 26 18-6. The 10-inch plug was drilled out at 90 feet. In Section 8-19-16, H. M. Hancock is drilling No. 1 Hampton at 1,565 feet. Ohio Oil Co.'s No 1 Moodie Fortner, Section 5-22-16, is at 375 feet after drilling out 10-inch plug at 375 feet. Standish Oil & Refining Co. also has a new test in No. 11 Allen, Section 23-22-15. It is at 600 feet, the 10-inch plug being drilled out at 100 feet.

LaSalle Parish

In the Urania Field, Modisette Drilling Co. is drilling at 1,350 feet in No. 4 Urania, Section 7-10-2e. The 10-inch plug was drilled out at 100 feet. Wingfield and associates' No. 6 Urania, Section 2-9-1e, is being drilled at 1,450 feet. Ayres Brothers and Tremont have started a new test in No. 4 Tremont, Section 30-10-2e, which is drilling at 600 feet. The 10-inch casing was cemented at 100 feet.

Monroe District

There was very little of interest in the Monroe district. Consolidated Carbon Co. has started the second hole for No. 1 White, Section 16-20-4e, Moorehouse Parish. This is at 189 feet where the 12½-inch casing has been cemented. The first hole, 50 feet south, was lost and the derrick was skidded to the second location Louisiana Development Co. is drilling shale at 1,300 feet in No. 38 fee, Section 21-20-5e, same parish. United Carbon Co. cemented the 8-inch casing at 868 feet in No. 1 Townsend, Section 29-21-5e.

In Ouachita Parish, Jordan Drilling Co.'s No. 1 Moore, Section 18-18-4e, is in shale at 2,021 feet. Ladell Properties, Inc., cemented 8-inch casing at 840 feet in No. 39 fee, Section 1-19-4e. The 12-inch casing was cemented at 190 feet.

In Union Parish, C. E. Camette is drilling No. 1 Tugurie, Section 21-22-1e, at 1,525 feet.

Webster Parish

Magnolia Petroleum Co. has a rig up for No. 3 Cox, Section 23-21-10, Cotton Valley district. In the same section Louisiana Oil Refining Corp. cemented 6⅝-inch casing at 4,200 feet in No. 1 Davis. Northwest Louisiana Gas Co. cemented 6⅝-inch casing at 2,720 feet in No. 1 Coyle, Section 22. Ohio Oil Co. in same section is fishing for the drill stem and casing in No. 4 Bank. Total depth of hole is 4,573 feet. Woodley Petroleum Co.'s No. 1 Cox, also in same section, is in lime at 4,390 feet.

ARKANSAS

Union County

In Union County there were 6 completions, 2 wells waiting on standard rigs, 2 wells temporarily abandoned, 41 wells drilling, 3 rigs, 12 derricks and 1 location. All except one completion were in the Norphlet area of Smackover, the exception being the Humble Oil & Refining Co.'s No. 6 Goodwin, Section 2-17-16, Lisbon. This well is pumping 15 bbls. at 2,191-2,200 feet.

A. H. Ramage's No. 11-C, Section 10-16-15, Norphlet, is pumping 225 bbls. of which 65 per cent is salt water. Sand is at 2,391-2,400 feet In same section, E. M. Jones has abandoned the location for No. 2-A Lawton and has torn down the derrick. In Section 9, Lion Oil & Refining Co.'s No. 2 Hardy-Murphy is pumping 300 bbls., 20 per cent salt water, from 2,398-2,409 feet. Same company's No. D-7, Section 8, is making 7,000,000 feet of dry gas at 2,768 feet, total depth of the hole is 2,806 feet. No. 6 Graves, Section 3, is pumping 25 bbls. from sand at 1,958-66 feet.

Norphlet Area

Also in Section 3-16-15, Norphlet area, Gulf Refining Co. is building a derrick for No. 44 Hardy Murphy. Sun Oil Co. is arranging to plug back No. 3 Hays, same section, and perforate the casing at 2,288 to 2,393 feet. No. 20 Hays, same section, has 900 feet of fluid, 50 per cent salt water, in the hole from a depth of 2,351 feet. Gulf Refining Co's No. 23 Murphy, Section 9-16-15, is in a broken sand at 2,415 feet. Hollifield and associates in same section cemented a short string of 4-inch casing at 2,738 feet. This is an old well being drilled deeper. Humble Oil & Refining is building a derrick for No. 10 Pate, Section 10. Imperial Oil & Gas Co.'s No. 5 Murphy, Section 9, is shut down waiting orders at 2,565 feet, where it has had a fishing job. A short string of 4¼-inch casing has been cemented at 2,897 feet in No. 7 Murphy. This well formerly was completed flowing 1,000 bbls. and is being deepened. Keen & Woolf also are arranging to deepen No. 5 Murphy, same section. It was completed last October at a depth of 2,672 feet, good for 30 bbls. of oil and 5,000,000 feet of gas. Louisiana Oil Refining Corp. is drilling No. 3-B Murphy, same section, at 2,728 feet. Also same section, Lion Oil & Refining Co. is setting liner in No 6 Hardy Murphy to test

(Continued on Page 142)

MIDWEST GETS ANOTHER PAY SAND IN McKINLEY COUNTY, N. M., WELL

By Special Correspondent

FARMINGTON, N. Mex., Apr. 2.—The Midwest Refining Co. encountered another pay sand in its No. 1, the discovery well on the Hospah structure, Section 1-17-9w, McKinley County. This sand, picked up at 1,625 feet is reported to be more prolific than the sand encountered at 1,531-56 feet, although no estimate of the flow can be made. Two strings of tools have been lost in the hole, making a test impossible. The hole is standing full of fluid, which is of 37 gravity. There is considerable gas pressure. This well is being drilled as a deep test and, regardless of production encountered, will probably be carried down. The Midwest company moved in a rig for a second test to offset No. 1 and it will be located in the NE cor., Section 2-17n-9w.

In the San Juan Field, approximately 500,000 feet of gas has been encountered in the San Juan Petroleum Co.'s No. 1 Palmer located in the NE NE, Section 17-29-13 at 1,073 feet. This is reported as a wet gas, with normal rock pressure. When the gas sand was topped, the hole was full of water, which was cleaned temporarily by the gas. As soon as the water has been shut off drilling will be resumed.

The Continental Oil Co.'s No. 17 Rattlesnake in Section 2-29-19 is down 3,785 feet. The crew are engaged in sidetracking a string of lost pipe. This company's No. 23 in Section 12-29-19 is drilling at 1,092 feet. An oil sand, encountered in this well at 845 feet, has been cased off, it being the intention to test the lower sands.

The Miley Oil Co., drilling on the Red Mesa structure, located in Section 38-33-12, shot its No. 1 in an endeavor to loosen the tools in the bottom of the hole. This was unsuccessful, however, as the string was dropped from the top and it is impossible to bring them through the casing. Another attempt at sidetracking them will be made. The Ohio Oil Co., operating on this structure, is drilling at 1,000 feet in shale in No. 2.

The Mid-Continent Oil Co.'s No. 1 in the Bloomfield district, Section 22-29-11, has been delayed several days due to broken machinery. Drilling has again been resumed at 530 feet in a dry sand, which in several other Bloomfield tests has carried artesian water.

Taylor & Burke, drilling on the Mancos structure, 19 miles north of the town of Shiprock, encountered a stray sand, believed to be about 100 feet above the Dakota, in which oil was encountered, estimated at 10 bbls.

James I. Harvey, Wichita Falls operator, is preparing to start operations on the Indian leases he holds in the Ute pasture, 20 miles northwest of Farmington. A rig has been ordered to the property and drilling is to start as soon as possible.

San Juan Field

Mid-Continent Oil Co.'s No. 1 Hare, NE NW, Section 22-29-11, drilling at 530 feet; Mansfield's No. 1 Emery per-

(Continued on Page 141)

THREE COMPLETIONS IN LOUISIANA MARKED WILDCATTING OPERATIONS

By Neil Williams

SHREVEPORT, La., Apr. 4.—Three completions, one in Bossier Parish and the other two in Richland Parish, marked the principal field news from wildcat areas of north Louisiana and Arkansas. One of these completions was the Woodley & Collins and Atlantic Oil Producing Co.'s No. 2 L. & A. in the Carterville area of northern Bossier Parish, which is flowing 200 bbls. of fluid daily, 80 per cent salt water. The other two completions were in Richland Parish in the Gulf Refining Co.'s No. 1 Marshfield, Section 30-17-6e, gauging 12,500,000 feet of gas from sand at 2,397 feet, and the Ruston Drilling Co.'s No. 1 O'Neil, Section 35-17-6e, making an estimated 4,000,000 feet of gas from 2,508 feet.

The Pleasant Hill district of northern Sabine Parish, because of delay in testing the Arkansas Fuel Oil Corp.'s No. 3 Logan, Section 33-10-12, failed to have any new light thrown on its oil possibilities. The Arkansas Fuel Oil Corp. now has two other wells, No. 4, Section 33, and No. 5, Section 28, ready to test.

In the Carterville area, an oil sand at 3,089-91 feet in Bethany Oil & Gas Co.'s No. 1 Dodson, Section 16-23-12, northwest of the Woodley & Collins well, is being tested.

Jackson Parish started to cause a little flurrry during the week when Ferguson, trustee's, No. 1 Martin, Section 5-15-1e, was reported flowing salt water with an oil showing after being shut down 60 days. The well now is flowing between 400 and 500 bbls. of salt water with no oil showing.

In Winn Parish, Ohio Oil Co. has lost the bailer in No. 2 Edenborn, Section 4-12-1e, and has a fishing job. This test is at a total depth of 4,454 feet. Hall & Harrell's No. 1 Duncan, Section 20 13-7e, Franklin Parish, has a sand showing oil at 2,079-84 feet but it shut down temporarily.

In Arkansas, the Marine Oil Co.'s No. 1-B Winn, Section 10-18-13, Lawson-Urbana district of Union County, tested an estimated 25,000,000 feet of gas with a heavy spray of salt water from a depth of 2,678-91 feet. This test is being watched because of the completion the previous week of the No. 1-B Thompson, same section, as a 60,000,000-foot gas well.

Routine operations during the week were:

NORTH LOUISIANA

Bienville Parish

B. P. Borden has started drilling in No. 1 L. & A., Section 9-15-7; depth so far is 100 feet. Kimbrough and associates' No. 1 Cargle, Section 27-15-8, still is shut down at 1,550 feet.

Bossier Parish

Woodley & Collins and Atlantic Oil Producing Co's No. 2 L. & A., Section 14-23-12, Carterville area, has been completed flowing 200 bbls., 80 per cent salt water, through 2½-inch tubing; depth is 3,079-81 feet. Bethany Oil & Gas Co. has cemented 6-inch casing at 3,078 feet in No. 1 Dodson, Section 16-23-12. Clark & Norton are drilling at 2,235 feet in No. 1 Ford, Section 32-23-13, having resumed operations after being shut down for rig repairs. John Glassell, Jr., and associates have started on a new test in No. 1 Gibson-Tiger, Section 14-21-14. They are drilling at 384 feet, having drilled out the 10-inch plug at 100 feet. Harrell Drilling Co.'s No. 1 Atkinson, Section 2-18-12, is shut down waiting for orders at 1,220 feet. The 6⅝-inch casing has been cemented at 3,080 feet in Louisiana Oil Refining Corp.'s No. 1 Blanton, Section 23-23-12. Magnolia Petroleum Co. is drilling at 2,125 feet in lime in No. 1 Dodson, Section 15-23-12 Simms Oil Co. is drilling at 1,082 feet in No. 2 Sandidge, Section 5-18-11. A Halliburton test at 1,031 feet showed salt water. Triangle Drilling Co. and W. D.

(Continued on Page 138)

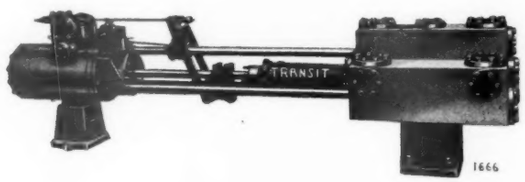
TRANSIT
HOT OIL PUMPS

INSURE THE HIGHEST GASOLINE YIELD

TRANSIT Single Steam Hot Oil Pump with forged steel fluid cylinder and water-cooled Hot Oil Type stuffing box.

Built in different combinations of steam and fluid cylinders to work against 150 to 800 lbs. pressure and will handle hot oil up to 800° F.

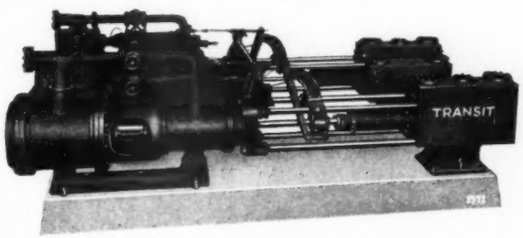
A solid steel forging is machined to form the fluid end. Tongue and groove flanged



openings packed with sheet aluminum gaskets, insure against leaks; and furthermore in order to prevent any possible leakage at the piston rods, we make a very deep, water jacketed stuffing box, so deep, that the hot part of the rod never runs up into the packing, much less into the open air. Two sets of packing and a lantern gland insure against leakage. This is common to all pumps illustrated on this page.

TRANSIT twin single hot oil pump with forged steel fluid cylinders and water-cooled Hot Oil Type stuffing boxes. "Twin single" means that two single steam pumps are connected together. Their operation is controlled by a synchronizing device, a part of the valve motion of the pumps.

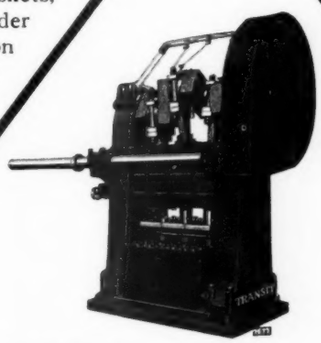
Either of the two single pumps is made large enough to handle the capacity required at nor-



mal speed. When running together, or synchronized, they operate at approximately one-half normal speed. Thus we obtain an easy running, slow speed, long stroke and consequently long-lived machine.

Through this synchronizer control either pump can be shut down at will. Immediately and automatically on shutting down either pump the other pump doubles up both in speed and capacity.

Hot oil up to 1000° F. can be handled at working pressures up to 1000 lbs.



TRANSIT Vertical Triplex Power Pump for hot oil up to 750° F. and to 1050 lbs. working pressure. Normal capacity 170 barrels per hour. This type of pump has many advantages for this important work. (a) Small floor space. (b) Weight of fluid plungers is suspended vertically from the crankshaft, thus relieving the packing of this weight. (c) Three fluid cylinders insure that pulsation is reduced to the minimum. (d) Exact metering, no short stroking.

The fluid end is machined from a solid forged steel billet, the only material we consider strong enough and safe for high temperature oil.

The fluid plunger stuffing boxes are extra long, water-cooled, and fitted with two sets of packing and a lantern gland. With this arrangement no stuffing box leaks are possible.

Prints, photographs and bulletin on request.

NATIONAL TRANSIT Pump & Machine Co.
OIL CITY, PA.

DISTRICT OFFICES
New York
Philadelphia
Pittsburgh
Cleveland
Denver
Houston
Tulsa

Ventura Field—Where Ever

Below is shown a view of the Ventura, California, oil and gas field where the rotary drill goes through three gas and oil zones to a depth of 6400 ft. and into an oil sand, the thickness of which is still unknown. The pressure is so great that it is necessary to mix a special material with the ordinary rotary drilling mud to increase its weight from around 85 pounds to one hundred or more pounds a cubic foot.

The great volume of gas is being conserved and used in Los Angeles and surrounding cities. At the right of the

THE C. & G. COOPE
1605 Kirby Bldg., Dallas
649 S. Olive

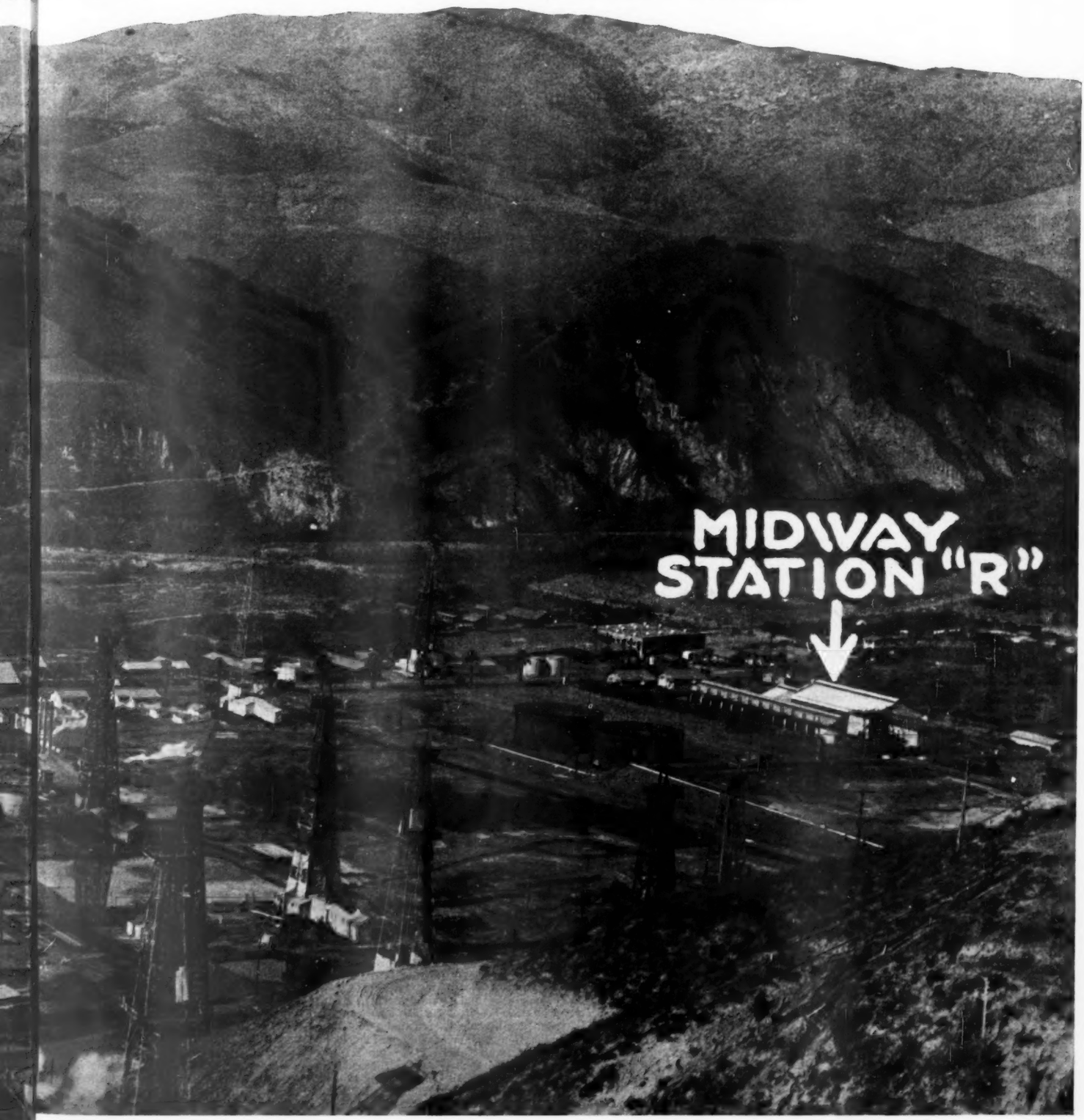
the Rotary Mud Is Special

picture may be seen two of Midway Gas Company's compressor stations. The long building contains twelve Cooper 170 B.H.P. gas engines, the wide one contains three of the new Cooper 760 B.H.P. twin tandem gas engines all direct driving compressors. An addition houses five more Cooper 160 B.H.P. gas engines direct driving compressors.

The Ventura Fuel Company is now building a compressor station which will contain nine of the new Cooper 760 B.H.P. twin tandem units.

COMPANY, Mt. Vernon, Ohio

s Angeles **604 Kennedy Bldg., Tulsa**



Decline of 4,882 Bbls. in Gulf Coast

New Production Totaled 17,010 Bbls. in Coastal Fields With Dozen Completions Reported

By P. L. McGreal
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Apr. 4.—A total of 17,010 bbls. new production which was developed in the Gulf Coast pools during the week of April 2 was not sufficient to offset the decline in the estimated daily average gross output, which shows a decline of 4,492 bbls. compared with the week of March 26.

An even dozen wells were completed during the week, of which two are listed as dusters and two salt-water wells. A distinction is made with reference to salt-water holes in this division because they may be either drilled deeper or plugged back and eventually become producers. Some of the nicest producers in the Coastal region were first listed as salt-water wells. In many cases the screen was pulled and the bit driven lower to find an oil sand and a good well. In other cases the hole was plugged back to a sand that had been "passed up" in drilling for various reasons. Thus, in the weekly routine review of operations, wells listed as salt-water holes may appear in reviews one or two weeks later as oil producers.

It is this peculiarity of formations that makes the Coastal division the most treacherous of all the producing divisions in the entire country. Hence, field superintendents and drillers are usually men of long experience in dealing with unusual conditions. Then, again, it often happens that these field men may be most successful in certain pools with which they are familiar and failures in others. "He couldn't make a well if he drilled in a tank of oil," has come to be a phrase in the Coastal region indicating that the driller and his immediate superiors are not familiar with local conditions. Geology and paleontology have been wonderful aids to developing production in this division, but it required many years of patient effort to convince field men they should "take orders from the office." The old-timers in the pools resented any interference from the general offices, and even yet many of them are in the same frame of mind.

Out of these unusual conditions grew the practice of the major corporations purchasing their own drilling equipment and employing drillers instead of contracting their drilling work as is the case in practically all other producing sections of the country. California is the one exception in addition to the Gulf Coast. This plan gives "the office," or in other words, corporation executives, direct supervision over all their field work. The plan has proved a success. All formation changes are now cored, examined and catalogued.

Daily Average Output

The gross daily average output for each pool is as follows:

Pool—	Dy. Ave.
Boling	1,675
Batson	1,415
Blue Ridge	2,850
Big Creek	4,535
Barber Hill	1,500
Dayton	45
Damon Mound	950
Edgerly (La.)	700
Goose Creek	7,600
Humble	4,010
Hull	16,220
High Island	470
Jennings (La.)	950
Lockport (La.)	6,700
Markham	750
Nash	900
Orange	4,900
Orchard	40
Pierce Junction	7,600
Piedras Pintas	140
Spindletop	56,900
Saratoga	1,175
Sour Lake	5,050
South Liberty-South Dayton	4,050
Stark (La.)	1,200
Vinton (La.)	5,100
Welsh-Anse La Bute (La.)	60
West Columbia	10,410
*Miscellaneous	1,450
Total	149,345

*Includes Nacogdoches, Washington and Kleberg Counties; spots in Cameron, Calcasieu and Iberia Parishes in South Louisiana.

Of the total daily average, 15,280 bbls. are credited to the South Louisiana districts.

Southwest Fields

The estimated daily average for the Southwest fields is placed at 36,830 bbls., a decrease of 390 bbls. compared with the week previous. The estimate for each field is as follows:

Field—	Dy. Ave.
Luling	18,260
Laredo-Mirando	13,740
Somerset	1,250
Calliham	40
Rockdale-Minerva	965
Miscellaneous	260
Lockhart (Lytton Springs)	2,315
Total	36,830
Grand total for week	186,175
Grand total last week	191,057
Net decrease	4,882

Spindletop Pool

Flush production in the deep-sand section of the old Spindletop Pool about offset decreases in the daily average production there during the week. The Gulf Production Co.'s No. 12 Weed came in flowing 2,500 bbls. pipe-line oil. Same company's No. 9 Oakwood, on the south end of the deep-sand area, is bailing. The Turnbow Oil-Favorite Oil Co.'s joint No. 1 Weed was deepened from 3,600 feet to 5,100 feet and found a sand that made a 5,000-bbl. well, initial flow. The Hines Oil Co.'s No. 1 Gordon is bailing at 5,025 feet, as is the Gulf Production Co.'s No. 223 Gladys in the old cap-rock section of the pool.

The Yount Lee Oil Co. is drilling Nos. 29 McFaddin, 24 and 25 Gladys, 24 and 25 fee. The Gulf Production Co.'s No. 7 Roche is around 4,345 feet, and No. 4 Mann is drilling below 2,965 feet. The Gulf Production Co.'s No. 9 Oakwood on the south side is bailing at 5,000 feet. No. 10 Oakwood is drilling at 3,800 feet.

The Atlantic Oil Producing Co.'s No. 1 McLean is working over. No. 8 is deepening. The Sun Oil Co. is deepening Nos. 2 and 4 McLean, the latter being below 5,200 feet. No. 1 Price is around 4,835 feet, and No. 2 Price is at 4,235 feet. The Rio Bravo Oil Co.'s No. 50 T. & N. O. is fishing at 3,350 feet. No. 101 T. & N. O. is drilling at 3,480 feet, and No. 101 around 3,545 feet. On the south side, the Magnolia Petroleum Co.'s No. 3 fee is at 2,545 feet and No. 4 fee below 3,265 feet.

J. O. Davis' No. 1 Gladys, one-half mile west of production, is drilling around 4,800 feet. Hines Brothers' No. 2 Roberts, one-half mile east, is at 3,135 feet. A derrick is up for No. 2 Gordon. Derricks are standing for the following: Atlantic Oil Producing Co.'s Nos. 14, 16 and 17 McLean; Sun Oil Co.'s Nos. 10 and 11 McLean; Walker Oil Co.'s Nos. 1 and 2 Quinn and Kinnear Oil Co.'s No. 1 Gladys.

Late in the week, the Yount Lee Oil Co.'s No. 24 McFaddin was completed at 4,750 feet, flowing 1,500 bbls. Same company's No. 6 Davis is flowing 2,000 bbls., 10 per cent water.

Hines Brothers have taken over the Lord-Mothner test, abandoned some time ago on account of lack of funds, and will deepen the hole.

Wells Completed and Bailing

At Blue Ridge, the Navarro Oil Co.'s No. 1-B Robinson was deepened to 4,000 feet and came in flowing 500 bbls. Screen was set in 50 feet of sand and shale. The Humphreys Corp.'s No. 1 West-Schenck was worked over and responded as a 400-bbl. producer at 3,200 feet.

The Rio Bravo Oil Co.'s No. 3 fee at Pierce Junction was deepened from 3,600 feet to 4,250 feet and came in flowing 2,700 bbls. Same company's No. 2 fee is in sand preparing to set and test at 4,456 feet.

At High Island, the Gulf Production Co. abandoned No. 3-A Smith at 3,150 feet. The Sun Oil Co. did the same with No. 9 Cade at 2,350 feet. No. 11 Cade is in sand and shale at 3,380 feet, and No. 12 Lockhart is in a sand showing oil at 1,875 feet.

In the deep-sand section on the southwest side at Sour Lake, the Gulf Production Co.'s No. 4 Ebberts is good for 15 bbls. at 3,900 feet.

The Cotton Oil Co.'s No. 2 Pope-Ellis in the Saratoga Pool is pumping 5 bbls. at 800 feet.

In the Batson Pool, the East Batson Oil Co.'s No. 9 Counselaman bailed salt water at 1,125 feet.

The Humble Oil & Refining Co. also got salt water in No. 1 Welder on the west side of the South Liberty Pool at 3,750 feet.

In the Hull Pool, the Gulf Production Co.'s No. 19 Baldwin is making 125 bbls. at 3,100 feet. Humble Oil & Refining Co.'s No. 1 Merchant is bailing at 4,150 feet.

In the Orange Pool, the Rycade Petroleum Corp.'s No. 2-B Cow Bayou is making 600 bbls. of fluid, 8 per cent water, at 3,900 feet. The Rex Petroleum Co.'s No. 13 Carbello is pumping 125 bbls. at 3,175 feet. Gulf Coast Oil Co.'s No. 5 Leon is bailing at 3,350 feet.

In the Lockport district, the Vacuum-Gulf company's No. 1 Farquhar is bailing at 4,400 feet. Their joint No. 4 Bordages is also bailing at 4,900 feet.

The Gulf Refining Co.'s No. 1-Z State land is good for 40 bbls. at 1,160 feet. It is in the Eagle Point district in Iberia Parish, La. It is a semiwildcat well.

The Humble Oil & Refining Co.'s No. 32 Galliard Peninsula at Goose Creek is bailing at 4,650 feet.

Wells Drilling

In the Boling Pool, The Texas Company's No. 2 Farmer is around 3,465 feet and the Sun Oil Co.'s No. 2 Farmer at about 2,500 feet. The Boling Oil Co.'s No. 2 Carson, in the shallow section, is rigging.

In the Fort Bend County Pools, The Texas Company's No. 3 fee, at Big Creek, is around 4,010 feet, and No. 4 is drilling at 655 feet. Gulf Production Co.'s No. 1-A Hausler is at 2,655 feet and No. 2 Hausler is below 3,165 feet. No. 1 J. H. P. Davis is drilling at 3,435 feet. No. 22 Davis is deepening around 3,565 feet, and No. 40 is drilling below 3,510 feet.

(Continued on Page 141)

TEXAS WELL STARTS ACTIVITY IN SOUTHEASTERN NEW MEXICO

By Special Correspondent

ARTESIA, N. Mex., Apr. 2.—Considerable wildcat drilling is expected in the extreme southeastern corner of this state, due to the completion by the Gulf Production Co. of a good well in Winkler County, Texas, 12 miles south of the New Mexico line. The Texas Company is the first to start active operations on the New Mexico side of the line having spudded in No. 1 Rhodes in Section 22-26-27, which is 14 miles north of the Gulf's well. Practically all the acreage in southeastern New Mexico is now owned by the major companies, with the Marland, Midwest and Texas having the largest share. Several geologists, who have done a large amount of detail work in this section, are of the opinion that a large fault extends from Pecos County, across the center of Ward, western Winkler and into Eddy County, New Mexico. This fault line has been drawn after a very careful study of well logs covering the area in question.

Well Made 100 Bbls.

The Ingelfield, Bridges' well in Section 4-17-34, put 100 bbls. into the tanks, after running a swab for two hours, this lowering the fluid but little. Over 4,000 feet of oil is now standing in the hole, the rig being shut down at 4,750 feet to replace gasoline engine with steam. Henderson, Dexter & Blair, Inc., Section 34-17-33 are shut down at 4,700 feet to repair the derrick.

The Cap Rock Oil & Gas Corp. has picked up the salt in its No. 1 in Section 11-16-32, at a depth of 1,011 feet. This well is running high structurally, basing this on the salt.

The Texas Company is spudding in its No. 1 Robinson in Section 25-16-31, this being 2½ miles northwest of the Maljamar Oil & Gas Corp.'s No. 1 Grace Mitchell, which is making 150 bbls. daily from the upper sand, the lower pay being shut off by a bridge.

A test of the Prairie Oil & Gas Corp.'s No. 1 Keel in Section 10-17-31 has proved disappointing, it being good for about 15 bbls. settled.

The Ohio Oil Co. is trying to recover a string of 4¼-inch casing, which dropped 20 feet, causing it to buckle. The bottom of the hole is 4,192 feet.

The Ohio Oil Co.'s No. 1 Marland has resumed drilling at 2,130 feet in Section 13-22-29. The Marland Oil Co. is drilling at 1,200 feet on No. 1 Hale in Section 11-20-30. The Superior Oil Co. of Los Angeles made its first location in the SW NW, Section 33-23-28, 2 miles south of the town of Loving. Rig timbers are being unloaded and the well will be drilled on a block of 8,000 acres.

South of Artesia, the Midwest Refining Co. is running casing in No. 1 Terry, this to be set at 600 feet. The W. A. Stone Oil Co. has its No. 1 Hnulik down 850 feet, having overcome a bad cave.

The Danciger Oil & Refining Co. is preparing to move to the No. 1 McClay permit test in the SW cor. SW SE. Section 23-17-27, this being near the Empire shallow pool.

Two More Potash Tests

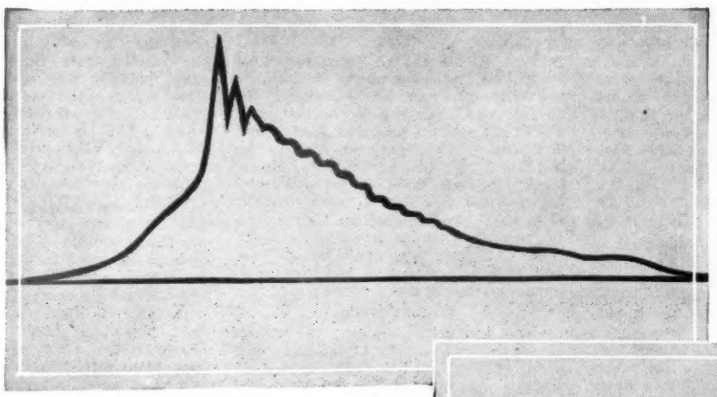
The Government is preparing to drill two more potash tests in Eddy County. One of these will be located 25 miles southeast of Artesia in the NE cor., Section 14-20-29, and a second test will be in the SW, Section 34-22-30. Good time is being made on the core test in Section 13-17-31, being drilled by the Sullivan Machinery Co.

Considerable drilling is expected to be carried on during the year in western Guadalupe and southeastern Torrance Counties. A steel rig is under construction 2 miles north of Vaughn in Guadalupe County, and a well will be drilled by D. I. McNabb. The intention is to drill to the Pennsylvania, if possible.

The Navajo Oil Co. according to a late report, will resume drilling No. 1 Trans-

(Continued on Page 141)

The first picture of that "knock"

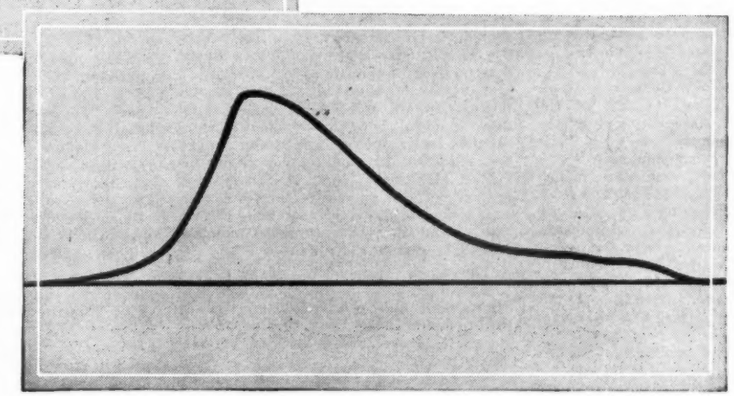


This is the "knock" in your motor

THIS shows photographically what occurs in the engine cylinder as carbon forms, when you operate your car on regular gasoline. The increased heat and pressure created by the carbon cause the gasoline to explode too quickly, with the result that there is an accumulation of high pressure waves which strike against the cylinder walls so violently as to produce an audible metallic sound. You know that sound as the "knock"—and the bumps in the line show what the "knock" looks like.

The "knock" is the bane of the car driver. It hurts both car and engine. It slows up engine revolutions; cuts down power and pick-up; increases vibration and engine wear and tear; and entails the trouble and expense of carbon removal.

From a photograph by General Motors Research Laboratories



And this is how "ETHYL" knocks it out

AND this shows photographically what goes on in the same cylinder under the same conditions when regular gasoline is treated with "ETHYL" fluid. Note the absence of "knock-bumps"; the evenness of the pressure changes. The "ETHYL" fluid has neutralized the heating qualities of the carbon deposits and by maintaining the normal combustion rate of gasoline has turned the increased pressure into increased power.

Ethyl Gasoline is the most efficient "anti-knock" fuel yet discovered. It transforms carbon from a liability into an asset. It produces more power on hills and heavy roads. Speeds up acceleration. Makes for easier handling in traffic. Reduces gear-shifting. Keeps out the "knock" with the spark fully advanced. And reduces wear and tear and maintenance costs.

From a photograph by General Motors Research Laboratories

THESE photographs were made possible by a special instrument invented by General Motors Research Laboratories to find out what goes on in an automobile engine's cylinder when "knocking" occurs.

That invention led to the discovery that what the average car owner has long called a "carbon knock," an "engine knock" or a "spark knock" is in reality a *fuel knock.* It is due to the tendency of regular gasoline to explode too quickly as carbon forms and increases temperature and compression (pressure).

Having determined the character of "knocking," General Motors developed "ETHYL" fluid, a patented chemical compound which when added in very small quantities to regular gasoline forms Ethyl Gasoline, the most effective "anti-knock" fuel yet known.

Ethyl Gasoline transforms carbon deposits from a liability into an asset. It produces more power on hills and heavy roads. It gives a faster "pick-up," reduces gear-shifting, lessens vibration and engine wear and tear; and saves the trouble and expense of carbon removal.

Ethyl Gasoline has increased the motoring satisfaction of hundreds of thousands of car drivers. It is destined to play a still more important part in the automobile history of the future.

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25 Broadway, New York

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QUESTIONS regarding the character and performance of Ethyl Gasoline and its effect on engine and engine parts are answered in the Ethyl Gasoline "Primer." If you have not already received a copy, one will be sent you on request to Ethyl Gasoline Corporation, 25 Broadway, New York.

ETHYL GASOLINE

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BRAND OF ANTI-KNOCK COMPOUND
ETHYL GASOLINE CORPORATION
NEW YORK, U.S.A.
Knocks out that "knock"

Bowlegs Area Gaining in Importance

Seminole Pool Proper Seems on Decline With Earlsboro Sector Limited. South Section Continues Big Factor

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

The Greater Seminole Field and the new wildcat well owned by C. J. Wrightsman and others in Section 30-7-4, Pottawatomie County, are still the topics of major interest in Oklahoma.

The Seminole Field production ranged from 336,000 to 327,000 bbls. daily last week, the production depending upon transportation conditions. The completion of the Oklahoma Pipe Line Co.'s new 10-inch line from Council Hill to Cromwell has given the field some relief, and at this time 20,000 bbls. daily are being put through it. It should be gradually increased to 35,000 bbls. by the end of the week, and the Pure Oil Co. and the Empire Gas & Fuel Co.'s new lines should be finished by the end of the month. Tank car shipments out of the field have increased, and there is little trouble caused by congestion now.

The Bowlegs Pool looms more important, and seems destined to take the place of the Seminole proper pool which is undoubtedly on the decline. There have been numerous reports about the water situation in 9-6 constituting a menace to the field, and the inference has been made that this factor would result in a serious decline in the near future. A survey of the water problem at Seminole shows that the only wells making any appreciable amount of water are wells situated on poor sections of the structure, and it is significant to observe that in the case of all wells making over 25 bbls. of water daily they have never produced over 400 bbls. of oil at any stage of their productive lives.

Production Compared

Seminole is unquestionably going down the decline in production, and a comparison of figures showing its production now and one month ago are interesting. Last week 9-6 produced 223,151 bbls. from 235 wells, and one month ago it produced 227,739 bbls. from 207 wells. The region has now produced so much more oil than was anticipated that a decline must necessarily be registered at some point, and Seminole already has proven a field of real merit.

The Earlsboro sector of Seminole is becoming negligible in production, and recent developments seem to indicate a very limited area for this pool. The south offers the only outlet for production, and the pool is conforming more to the general outline of Wilcox sand structures than any of the Seminole pools. The most recent completion is the Gypsy Oil Co.'s No. 1 Strain, NE cor. NE Section 17-9-5, which is a hole full of water 10 feet in the sand. This well further eliminates the possibility of any west extension.

Bowlegs seems to be acting similar to the Seminole Field in many respects, particularly in the matter of upsetting every tenable theory of structural conditions. The most recent example of this is the Gypsy Oil Co.'s No. 7 Walker in Section 15-8-6. This well found the top of the Wilcox sand 215 feet lower than the Carter Oil Co.'s No. 1 Walker, which is only three locations east and one location south. The Gypsy well by every reckoning should have found water and been dry, but it is flowing 3,600 bbls. daily after being agitated. The Sinclair Oil & Gas Co. has found a well in No. 1 Adams, NE cor. SE SE Section 22-8-6, which is 275 feet lower than Carter's No. 1 Walker, and the Sinclair well is a very light producer. Flowing actions of the Bowlegs wells also resemble the behavior of wells in 9-6. There have been two wells drilled into the sand which made only a very limited amount of oil by natural flow, but when agitated, responded with huge outputs. It is likely that the Bowlegs production will afford an ideal spot for the application of air-gas lifts which as yet have been unnecessary.

Bowlegs Output

With a current production of 40,000 bbls. at Bowlegs, and 15 wells nearing completion in locations which may be termed proven territory in as full a sense as the word may be used, there is every reason to believe that Bowlegs should touch a figure of 60,000 bbls. before April passes. This increase of 20,000 bbls. should partly be offset by a decline in 9-6, which is now reaching the spot where a better idea of the life of the air-gas lift system may be obtained. If this system proves effective in 9-6 for a period of 60 days or more, there should be little variation in its production, and if any change be registered, it should be a slight increase. However, should the air-gas lift system perform as many believe it will, and cease its period of usefulness within the next 60 days, a substantial decrease sohuld be registered in 9-6.

The future production of Earlsboro for a time at least should be rather constant, and the completion of close-in wells should offset any decline in the output of those wells which are already producing.

There is some question now as to whether the Greater Seminole will touch the peak of 400,000 bbls. which has been predicted for it, and until the Pure and Empire pipe lines into the field are completed, estimates of the entire area must be guesses.

What is thought to be a record of production for one company in one field in Oklahoma was established by the Carter Oil Co. on Sunday of this week when that concern produced 71,000 bbls. in 24 hours. This figure was exceeded by the Gypsy Oil Co. at Eldorado, Kans., many years ago when 76,000 bbls. were put into the tank by the latter company in one day. Officials of the Carter company estimate that a production of 3,000 bbls. additional was available on Sunday had transportation facilities made its output possible.

Wildcat Wells

There was little news from the wildcat wells of the State. The Wrightsman well in Section 30-7-4 has been pinched in pending pipe-line connections, and when opened up on Sunday of this week flowed 35 bbls. an hour over a period of six hours. The well was estimated at 3,700 bbls., and this output ranks it as one of the leading Hunton lime producers of the Mid-Continent. There have been several locations made around the new find, and pipe-line or tank-car movement of the oil should be made possible very soon, after which a better idea of its stability will be available.

The local crude market has been disturbed by repeated rumors of further price reductions which have not been made by the purchasing companies. The majority of these reports seem to originate in New York, and cannot be verified by the management of the crude purchasers. The movement of crude continues to increase, and the majority of purchasers find their shipments of crude showing a substantial increase over the movement of crude for this month of last year, although owing to the huge production of the state almost 150,000 bbls. daily finds its way into storage. It is significant that a very limited amount of crude is being offered below the posted price, and in no case has crude appeared on the market at less than 10 cents per barrel under the market figure, and these instances have been rare.

The wildcat leasing campaign which was under full sway during the winter has abruptly stopped, but land now under lease is extended to regions many miles from production, and the general idea prevails that numerous companies have gone far from shore in their lease holdings. When one considers that leases in Canadian and Oklahoma Counties have been freely purchased, it seems that leasing has gone a long way from home.

The list of production in the Greater Seminole Field giving the detailed results by companies, leases and pools:

Seminole (9-6)

Company and Lease—	Wells	Prod.
Amerada Pet. Corp.:		
Fixico	4	4,790
Killingsworth	4	2,704
Rentie	4	3,615
Atlantic O. P. Co.:		
N. Cudjo	3	6,940
J. Cudjo	2	Off
Barnsdall Oil Co.:		
Carter	9	12,073
Jones	2	8,793
Carter Oil Co.:		
B. Carter	2	195
J. Carter	4	115
F. Carter	4	1,865
R. Cudjo	3	5,645
W. Cudjo	1	2,025
Gilliland	1	2,620
Knappenberger	3	3,420
Grisso	6	8,340
M. Killingsworth	7	10,355
G. Killingsworth	3	3,145
Lukes	3	5,225
Strothers	1	2,880
Vierson	2	640
Empire Gas & Fuel Co.:		

IT IS NO WONDER HE COMMITTED SUICIDE
Happy; thinks things are normal
About to find a reverse
Misses the Hunton but finds Wilcox
Finds a dry hole and breaks the stock market
Hunton gusher deepened to Wilcox
Twin also gets Wilcox
Gusher quits - He gives Company hot air and it
Flows again
Finds marker 3 times and it's bugs
High and dry
No alibi - worried
Thick Hunton -
Predicted dry hole, got well - more worried
Hope again
Every thing normal
Finds no Hunton, predicts enormous gusher
Commits suicide and follows Wilcox sand to H
Company keeps on bringing them in
HUNTON LIME
SYLVAN SHALE
VIOLA LIME
HFW
Trys to make a structure but it slips
The old swimming hole, miles deep and full of gyp
Geology's dead - Long live Geology
SAD EXPERIENCES OF A ROCK-HOUND WITH SEMINOLE FORMATIONS

The above cartoon, arranged by Tulsa geologists and published on the menu at the banquet of the twelfth annual convention of the American Association of Petroleum Geologists in Tulsa recently, attracted widespread comment. While conditions naturally were overdrawn, there was so great an element of truth in the cartoon it made an instant appeal to the geologists who had tried to figure out the seemingly contradictory conditions existing in the Seminole Field.

Wilson	2	4,991
Gypsy Oil Co.:		
Butler	3	2,400
Carter	8	3,364
Fixico	5	259
Harjo	1	1,667
Wolfe	5	3,939
Independent et al:		
P. Fixico	2	60
T. Fixico	8	1,936
Jones	4	1,080
Indian Terr. Illum. Oil Co.:		
Bowlegs	7	4,589
Goodin	3	1,012
Harjo	4	1,152
James	5	1,565
Reed	3	43
Kingwood-Roxana:		
Johnson	5	4,782
Magnolia Pet. Corp.:		
Franks	2	3,000
Mid-Cont. Pet. Corp.:		
Rentz	8	3,810
Tayeche	7	1,985
Mid-Kansas Oil & Gas Co.:		
Johnson	1	440
Cully	1	670
Philmack-McCulloch:		
Butler	1	1,700
Phillips Pet. Co.:		
Strothers	1	Off
Prairie Oil & Gas Co.:		
Gross	5	230
Spencer	1	35
Strothers	5	12,150
Pure Oil Co.:		
Strothers	16	16,731
Roxana Pet. Corp.:		
Harber	1	442
Lashley	1	69
Sinclair Oil & Gas Co.:		
Carter	2	50
Cudjo A	6	4,655
Cudjo B	3	5,826
*Fixico	2	2,425
*Half Transcontinental:		
T. B. Slick:		
Cudjo	1	4,162
Franks	6	7,968
Giblet	1	1,666
Superior Oil Co.:		
Cudjo	4	4,620
The Texas Company:		
Mayhue	1	510
Tidal-Osage Oil Co.:		
Carter	4	4,210
Fixico	5	6,525
Harjo	6	515
Mahardy	4	1,110
Tayeche	2	3,496
Turman Oil Co.:		
Cudjo	4	8,133
Grisso	1	2,675
Jones	3	5,610
Total	238	223,151
Searight (10-6)		
Carter Oil Co.:		
Davis	5	5,645
Frazier	2	3,760
Kiker	1	Off
Scott	1	90
Stewart	2	650
Gypsy Oil Co.:		
Cudjo	1	1,310
Mid-Cont. Pet. Corp.:		
Grayson	3	7,620
Prairie Oil & Gas Co.:		
Carter	1	65
Houck	1	Off
Kinkade	6	9,090
Searight et al:		
Youngblood	2	Off
Sinclair Oil & Gas Co.:		
Polly	1	940
Twin State Oil Co.:		
Jennings	1	321
Total	27	30,022
Bowlegs (8-6)		
Amerada Pet. Co.:		
Rasco	1	2,815
Carter Oil Co.:		
Bowlegs	1	5,235
Walker	1	5,420
Empire Gas & Fuel Co.:		
Lacey	1	5,685
Gypsy Oil Co.:		
Mission	1	Off
Walker	2	5,490
Indian Terr. Ill. Oil Co.:		
Davis	1	2,857
Livingston	2	11,040
Walker	1	204
Goforth	1	1,296
Roxana Pet. Corp.:		
Taylor	1	107
Sinclair Oil & Gas Co.:		
Adams	1	337
Harjo	1	Off
Total	15	40,496
Earlsboro (9-5)		
Amerada Pet. Co.:		
Anderson	2	10,401
Gypsy Oil Co.:		
Bore	1	115
Earl	1	2,932
State Land*	1	17,454
Magnolia Pet. Co:		
Holmsley	1	92
Mid-Continent Pet. Corp.:		
McCumber	1	555
Prairie Oil & Gas Co.:		
Baker	1	85
Sinclair Oil & Gas Co.:		
Foreman	1	25
Earlsboro shallow sand	23	4,900
Total	34	36,559

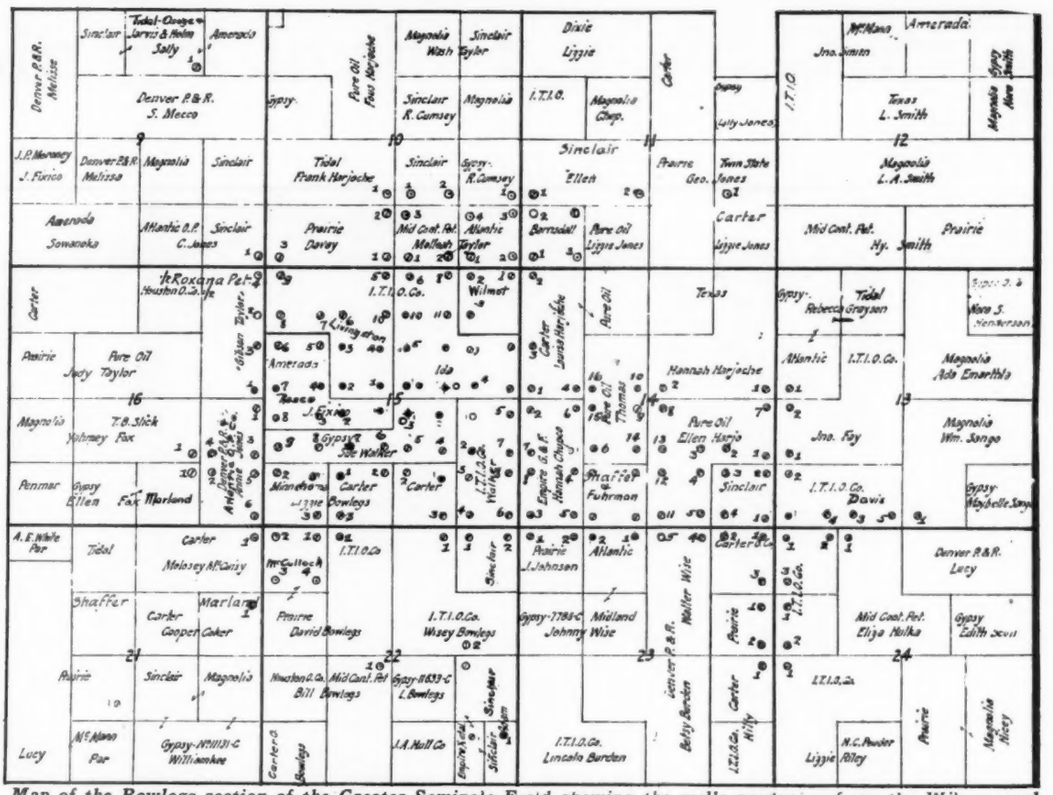
*Half Amerada.

Summary by Sands

Shallow	26	4,965
Hunton lime	41	7,000
Wilcox	247	318,263
	314	330,228

Summary by Districts

Seminole	238	223,151
Searight	27	30,022
Bowlegs	15	40,496
Earlsboro	34	36,559
	314	330,228



Map of the Bowlegs section of the Greater Seminole Field showing the wells producing from the Wilcox sand, and drilling wells.

Carter County

Merrick-Gault Co. is building the rig for No. 2 Dixon "A," SW cor. NW, Section 19-1s-3w. Carter Oil Co. has built the rig for No. 5 Kimbrell NW cor. SW, Section 22-2s-3w. Magnolia Petroleum Co. is building the rig for No. 1 Riley, NE cor. SW, Section 17-2s-2w.

Merrick-Gault Co.'s No. 1 Dixon, SE cor. SW NW, Section 19-1s-3w, was completed for a 75-bbl. well, producing from broken sands from 2,439 feet to 2,922 feet. Magnolia Petroleum Co.'s No. 2 Miller, NE cor. SE SW, Section 28-1s-5w, had broken sand 3,160-86 feet from which it is producing 165 bbls. Simpson-Fell Co.'s No. 2 Hales, SW cor. NW NW, Section 11-2s-3w, made 248 bbls. the first 24 hours from broken sand 2,652-2,982 feet.

Creek County

J. O. Buckles and others have the rig up for No. 1 Frailey, NW cor. NE SE, Section 22-18-8. Transcontinental Oil Co.'s No. 3 Hoover, NE cor. SE, Section 21-17-8, is drilling at 703 feet. J. M. Kessler & Logan's No. 1 Morton, SE cor. SW NW, Section 27-14-10, is a rig. Curtis Oil Co. and others have the rig up for No. 1 Thompson, SE cor. SW, Section 23-16-10. Kolb and others have moved the machine out for No. 1 Oakhurst townsite on Lot 8, Block 16, Section 6-18-12. Denver Fuel Co.'s No. 1 Lots 3 and 4, Block 17, in the Oakhurst Townsite Pool, Section 6-18-12, is spudding. Redgraves and others have a machine at the location for No. 2 Snow, SW cor. SE SE, Section 15-18-11.

Shaffer Oil & Refining Co.'s No. 2 Jones, SW cor. SE NW, Section 26-18-7, is making 32,000,000 feet of gas from sand at 2,885-2,930 feet. No. 15 Tiger, SE cor. SW NW, Section 17-17-7, is producing 4,000,000 feet of gas from sand 2,730-42 feet. No. 1 Coker, NE cor. NW NW, Section 17-14-8, had water in sand at 3,942-65 feet and is abandoned. C. G. Tibbens' No. 1 Bear, NW cor. SW, Section 24-14-8, had a hole full of water in sand at 2,870-2,935 feet and has been abandoned. Regal Oil Co.'s No. 16 Barnett, SE cor. NW SW, Section 13-18-11, had water in the Turkey Mountain sand at 2,324-26 feet and is abandoned. Sheridan Oil Co.'s No. 1 Bruner, SW cor. Section 22-18-11, is a dry hole in the Wilcox sand 2,294-2,309 feet. Love and others' No. 1, Lot 35, Block 16, Section 6-18-12, in the Oakhurst Townside Pool, was completed for 195 bbls. in the Turkey Mountain sand 2,252-53 feet. O'Reilly & Lillystrand's No. 1, Lot 40, Block 18, Section 6-18-12, in the Oakhurst Pool had the Turkey Mountain sand 2,250-52 feet and is good for 40 bbls. J. H. Rebold's No. 1, Lots 1 and 2, Block 17, Section 6-18-12, another producer in the Oakhurst Pool, is making 650 bbls. from the Turkey Mountain sand 2,203-08 feet. Iron Mountain Oil Co.'s No. 1-A Self,

(Continued on Page 92)

LOST SPRINGS DISTRICT, KANSAS, MOST OBSERVED SPOT IN STATE

By J. L. Dwyer

Staff Correspondent, Kansas Fields

The Lost Springs district of Marion County, Kansas, is still the most observed spot in the State. The revivification of interest in this territory has been caused by the Phillips Petroleum Co. and others' new well, No. 1 Razineck, NW cor. SE, Section 22-17-4, which is now estimated at 400 bbls. and has evidently opened a new pool. Acreage around the new well has been selling for good prices considering the present unfavorable condition which the oil industry finds itself. The Prairie Oil & Gas Co., the Skelly Oil Co. and the Independent Oil & Gas Co. are holders of leases close to the well.

The Churchill Pool of Sumner County is still performing to the credit of the Roxana Petroleum Corp., and the thirty-ninth well has been drilled in this pool which has a very high average production per well. There have been no Silicecus lime failures in the pool, although three wells have found the Stalnaker sand barren.

In the State Pool, north of the city of Winfield, in Cowley County, the Independent Oil & Gas Co.'s No. 1 State-Cochran, SE cor. NE NW, Section 15-32-4, is swabbing over 600 bbls. daily from the Siliceous lime, and the offset well owned by the J. A. Hull Co. is nearing the pay. Some idea of the area of the new region should be obtained this week.

Butler County

Howarth, Howard and others made location for No. 1 Clayton, SE cor. NW, Section 23-25-6. Connell Oil Co. and others have a rig on the ground for No. 1 Kappes, C SE SW, Section 3-26-4. Rosenthal, Lassen and others have rig on the ground for No. 5 Shaffer, SE cor SW SE, Section 4-27-6. Richmond Drilling Co. has moved out the rig for No. 2 Brissey, NE cor. NW SE, Section 8-27-6. Intersea Oil Co. & Blankenship's No. 2 Cabine, NE cor. SW, Section 9-27-6, is drilling at 900 feet. Phillips Petroleum Co.'s No. 1 McGinnis, NW cor. SE NE, Section 9-27-6, is a location. Christy and others' rig is being built for No. 1 Harris, SW cor. SE, Section 14-27-7. Flack & Davidson made location for No. 1 Gibbons, SE cor. NW, Section 5-29-7.

Empire Gas & Fuel Co.'s No. 74 Koogler, SW cor. NE NW, Section 20-26-5, made 20 bbls. from sand 2,478-2,545 feet. Lebow & Travis' No. 1 Mossman "A," NW cor. SE SW SW, Section 24-26-5, is dry and abandoned at 2,815 feet. Phillips Petroleum Co.'s No. 1 Edwards, SW cor. SE NE, Section 4-27-6, was completed for 90 bbls. in sand 2,790-2,813 feet. Allison & Fitzwilliams' No. 1 McGinnis, NW cor. NE, Section 9-27-6, made 150 bbls. from sand 3,159-64 feet. Empire Gas & Fuel Co.'s No. 10 Hazlett, SE cor. NW NE, Section 11-28-4, is making 125 bbls. from sand 2,520-38 feet. National Refining Co.'s No. 6 Molter, NW cor. SW NE, Section 26-28-5, is a 10-bbl. well in sand 2,765-95 feet.

Chautauqua County

Griffin, Bell and others have moved out the machine for No. 3 Oliver, CSL N half SW NW, Section 1-32-10.

Coffey County

Reeser and others have abandoned the location for No. 1 Hossbeck, NE cor. SE SW, Section 23-21-13.

Cowley County

Trees Oil Co. has made location for

(Continued on Page 151)

Crowding Crooked Tubing Out of the Picture!

Oil field scenes which showed piles of crooked tubing used to be common. Nowadays, ruined tubing is being crowded out of the picture because alert operators have learned to specify a GUIBERSON Tubing Catcher for every well.

Illustrated above, at the GUIBERSON Plant, are enough GUIBERSON Catchers to insure the safety of millions of dollars worth of tubing. These catchers are fully patented.

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GUIBERSON
BETTER BE SAFE THAN SORRY

Nine Producers in the Laredo District

Four Gas Wells and Five Oil Wells. Increase in Gas Operations Expected to Continue

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Apr. 4.—Nine producers, four of them gas wells with a combined open flow of 103,500,000 feet, five of them oil wells with a total initial production of 150 bbls., and three failures were reported from the Laredo district last week. Outside of the Laredo district in Southwest Texas, there were five gas wells completed with a total open flow of 101,250,000 feet and no oil wells. There were six failures and one location abandoned.

Laredo District

Completions in the Laredo district include the Magnolia's No. 1 Hahl in the northwest corner of Duval County, a 1,500,000-foot gasser in sand at 4,070-90 feet and 20 miles from production; Alworth Brothers' No. 3 Garcia in Survey No. 39 in Jim Hogg County, their second producer and the third successful well in the new Alworth Pool, a 50-bbl. well on the pump in sand at 1,036 feet, total depth; Magnolia's No. 35 Martinez, Survey 256, Block 15 of the Henne, Winch & Fariss Pool, at 2,046 feet, a 4,000,000-foot gas well; Grayburg's No. 16 Weil in the Randado Pool, Block 9, Survey No. 81, at 1,312 feet, a 20-bbl. well; and No. 17 Weil at 1,316 feet, a 30-bbl. well on the same block. Magnolia's No. 1 Benavides, in Block 486 of the Benavides grant in Duval County, a half mile north of the O'Hern & Seacord wells on Survey 174, at 1,735 feet, is a 48,000,000-foot gasser. Houston Oil-Sun Oil Co.'s No. 1 A. Benavides, a mile north of the Magnolia's well, is a 50,000,000-foot gas well at 1,630 feet. Crown Central's No. 21 Bruni, Block No. 43 of the Bruni tracts in Webb County, plugged back from 1,753 feet to 1,731 feet is a 30-bbl. well. Sun Oil Co.'s No. 14 Bruni, in Block 45, at 1,667 feet is a 20-bbl. well.

During the week in the Laredo district the abandonments were Associated Oil Co.'s No. 3-B Webster in Survey No. 684, in the southeast quarter of the northwest quarter of the northwest quarter in the Carolina-Texas Field in Webb County at 2,604 feet. The well has been standing for some time. Rawlins & Pelton abandoned the No. 1 Garcia in Survey No. 736 of Webb County (a wildcat), at 2,010 feet, and Cin-Tex Petroleum Co. abandoned No. 2 Willmann, at the north end of the Cole Field in Survey No. 354, at 2,032 feet. It missed the regular sand depth of around 1,700 feet in that field.

San Antonio Territory

In the Refugio Field in Refugio County, William F. Morgan completed No. 1 Rose Rogers, a three-quarter-mile extension of the field to the west, making 30,000,000 feet at 1,880 feet, and Houston Gulf Gas Co. completed No. 2 Moody, in Town Tracts No. 2, at 1,600 feet, making 31,000,000 feet. In San Patricio County, W. L. Pearson completed No. 5 Cage at 2,400 feet, making 40,000,000 feet of gas. On Gas Ridge, west of San Antonio in Bexar County, Joe Clutter completed No. 15 at 792 feet, making 84,000 feet of gas, and No. 14 at 824 feet making 150,000 feet.

Failures during the week were the F. G. Blumberg's No. 1 Angelke, at the southwest end of the Luling Field in Guadalupe County at 2,260 feet, making water and a little oil. Jarmon & Minahan abandoned their location on submerged land in the Kingsville Field. Other completions are noted in the report on wildcats.

A total of 88 operations is listed in the Laredo territory the past week, which is a slight falling off. Some rigs are being stacked as they finish jobs unless lease requirements necessitate drilling. In Jim Hogg County, there are only two wildcat wells drilling, and other counties have but few more. Drilling continues in pools in process of being developed, and for the most part there is not much noticeable slackening of operations. In the San Antonio territory the operations are more nearly stationary and there is very little falling off. Due to development of gas areas, however, that are not affected by the price of crude oil, the number of operations will not show material decrease in any of the Southwest Texas districts and may show a little increase in a few weeks as new plans are started.

The past week was devoid of any particularly interesting developments in any of the regular producing areas.

Cole Gas Field—Duval

Cole Petroleum Co.'s No. 35 Benavides, Survey 21, Block 4, located 150 feet to southeast lines and 450 feet to southwest lines, is rigging up; No. 36 Benavides, Survey 412, Block 14, located 169 feet to east lines and 266 feet to north lines, is drilling at 500 feet; No. 37 Benavides, Survey 21, Block 6, located 150 feet to southeast lines and 450 feet to southwest lines, has derrick up; derrick is up in Survey 10, Block 12, at 155 feet to northeast and northwest lines, for No. 38 Benavides, and is Survey 19, Block 8, located 660 feet to northwest and southwest lines No. 39 Benaivdes is drilling at 250 feet, and No. 40 Benavides, in Survey 20, Block 7, at 660 feet to northwest and southwest lines, is rigging up. Houston Oil-Sun Oil Co.'s No. 1 "A" Benavides, located at the corners of Block 475-476-477-478 at 1,619-30 feet has been brought in estimated at 50,000,000 feet and as casing failed to hold well is running wild until cement block can be placed around the top of the casing after which the well will again be shut in; location has been made for No. 2 "A" Benavides, at corners of Blocks 407-408-409-410. Killam-Maddox has derrick up in Survey 4, Block 5, at 150 feet to northeast and southeast lines for No. 1 Bruni. Houston Oil Co.'s No. 1-C Rosa Benavides, Survey 20, Block 4, located 660 feet to southwest and southeast lines has derrick up.

O'Hern & Seacord Pool

Magnolia Petroleum Co.'s No. 1 Benavides, Block 486, located 300 feet to northeast and southeast lines, at 1,731 feet tested 20,000,000 feet of gas through Halliburton tester; location has been made in Block 486 for No. 2 Benavides'. O. W. Killam spudded in No. 1 Bruni, located in Survey 585, 1 mile southwest of the discovery well, and is now shut down to drill a water well.

Randado Field—Jim Hogg

Grayburg Oil Co.'s No. 16 Weil, Survey 81, Block 9, located 150 feet to NE cor., is testing at 1,306 feet; No. 17 Weil located in same block and survey, has been spudded in, with location 150 feet to north line and 450 feet to east line. Magnolia Petroleum Co.'s No. 21 Merchants State Bank, located in Survey 415, has been spudded in; No. 20 de la Garza, Survey 291, Block 7, located 450 feet to SW cor., is drilling at 1,995 feet. Livingston & Ritchson's No. 1 Palacios Survey 287, Block 18, 150 feet to NW cor. and 2,000 feet east of the line of production, has a sand at 1,360-65 feet.

Henne, Winch & Fariss Field

Magnolia Petroleum Co.'s No. 27 Martinez, Survey 276, located 1,750 feet to east line and 2,525 feet to north line, has been spudded in; No. 35 Martinez, Survey 256, Block 15, located 400 feet to west line and 150 feet to south line, has a sand at 2,038 feet and is waiting on Starr rig.

Alworth Field

Magnolia Petroleum Co.'s No. 19 Merchants State Bank, Survey 236, located 450 feet to south line and 150 feet to west line, is drilling at 2,000 feet; derrick is up in the same survey at 450 feet to west line and 150 feet to south line, for No. 22 Merchants State Bank. Alworth Brothers' No. 3 M. Garza, Survey 39, Block 4, located 490 feet to northwest lines and 150 feet to southwest lines, at 1,030 feet, has been put on the pump and is making 60 bbls. estimated daily. This is the second producer in the field, though Magnolia, on the north, got a well making 5 bbls. Alworth Brothers have made locations for the Nos. 4, 5, 6, 7, 8, 9, 10, 11 all in Survey 39, Block 4, 5, 6.

Schott Field—Webb

Jones and others' No. 3 Garcia, Survey 463, located 150 feet to NE cor., is rigging up. Magnolia Petroleum Co.'s No. 6 Garcia, Survey 58, located 1,990 feet to west line and 440 feet to north line, is ratholing at 1,700 feet.

Albercas Field

O. W. Killam's No. 1 Bruni, Block 65, located 1,470 feet to SW cor., has been spudded in. This new test is a little northwest of the big gasser brought in several weeks ago by Killam-Maddox in the same block.

Aviator or Bruni Tracts

Ball and others' have derricks up for No. 1 Puig, in Block 58, located 150 feet to SW cor. O. W. Killam's No. 1 Puig, Kirkpatrick tract, 150 feet to NE cor., is testing at 1,864 feet through Halliburton tester. Edward St. Albans' No. 2 Puig, Evans tract, 450 feet to east line and 150 feet to south line, is drilling at 1,000 feet. Aztec Oil Co.'s No. 1 Puig, Block 49, located 200 feet to south line and 350 feet to east line of the north half, is drilling at 1,300 feet. H. E. Neal's No. 1 Bruni, Block 41, located 150 feet to NW cor., is drilling at 1,400 feet. Murchison & Fain has made location in west half of Block 45, at 1,650 feet to north line and 150 feet to east line, for No. 1 Bruni. Sun Oil Co.'s No. 14 Bruni, east half of Block 45, located 2,050 feet to north line and 200 feet to west line, is on sand at 1,662-67 feet.

Mirando Valley Field

J. L. Johnson and others' No. 1 Anderson, Survey 2,363, Block 6, located 150 feet to SW cor., is testing through Halliburton tester at 1,881 feet. Cornhuskers Oil Co.'s No. 6 Garcia, Survey 605, is coring for sand at 1,648 feet.

Carolina-Texas Pool

Associated Oil Co.'s No. 1 Webster, SE NW NW Survey 648, located 150 feet to east line and 250 feet to north line is standing at 2,604 feet with hole filled with mud. T. P. Morgan's No. 1 de la Garza, Survey 335, Block 23, located 150 feet to SE cor., is whipstocking out at 2,200 feet. Barnsley-Chicago Syndicate's No. 1 de la Garza, Survey 335,

(Continued on Page 146)

WILDCATTING IN SOUTHWEST TEXAS SEEMS TO BE HOLDING ITS OWN

By B. D. Stevenson

SAN ANTONIO, Tex., Apr. 4.—Wildcatting in the Southwest Texas areas does not seem to show much effect of the cuts in crude oil thus far. A number of new tests have been reported the past week for the first time and with tests started and those preparing to start the wildcat activity seems to be holding its own. There are a number of interesting features in wildcat history for the past week. In the Alworth Pool in Jim Hogg County, where Alworths some months ago got a well at 1,021 feet, on Survey 39 of Jim Hogg County, making about 30 bbls. of oil on the pump and as much water, they have lately completed their No. 3 well, off to the south, reported now on the pump as a 50-bbl. well at 1,036 feet. They are moving in three rigs, some of which are already starting, and have a total of new locations from No. 4 to No. 11. Magnolia got two wells, a half mile or so to the north, each making some oil and some water. The Alworth-Stevens-Hild syndicate, which is now operating the Alworth leases, thinks the production is to the south and southeast and southwest and their locations are all in that direction and their leases also. A couple of weeks will probably see their first completions and determine the direction of the field.

Duval County Edge Well?

Magnolia's No. 1 Hahl, in Survey No. 51, in the northwestern part of Duval County, is estimated now at 1,500,000 feet of wet gas at 4,070-90 feet. They have stacked the rig and will not make a new location at once. It is 20 miles from production. It may prove an edge well. Schlessinger, on Survey 76, 3 miles southeast, abandoned No. 1 Hahl at 3,008 feet as previously recorded. It had a showing of oil at about 2,400 feet. The new location will be about a half mile west, probably, and in Survey No. 60. They are preparing to move in as soon as the stake is driven for the location. Magnolia, it is understood, will await the outcome of this well as it may throw considerable geological light on that part of the county.

North of the Henne, Winch & Fariss Pool in Jim Hogg County, and east of the Bruni tracts in Webb, Killam is drilling the second well on Block 65 of the Bruni tracts in the lower edge of Webb County, where Killam-Maddox opened a new gas producing spot 4 miles from nearest production as reported recently. The second well is down nearly to sand depths and will be in by the end of the week, probably. Also two wells are nearing the sand at the north edge of the Alberca grant in Webb County, in the Puig tracts 2 miles east of production in the Aviator Pool, where Straight Eight discovered the spot with a well making oil and water and St. Albans got a good oil well at about 1,865 feet. These should be completed in a week or two.

Caldwell County Test

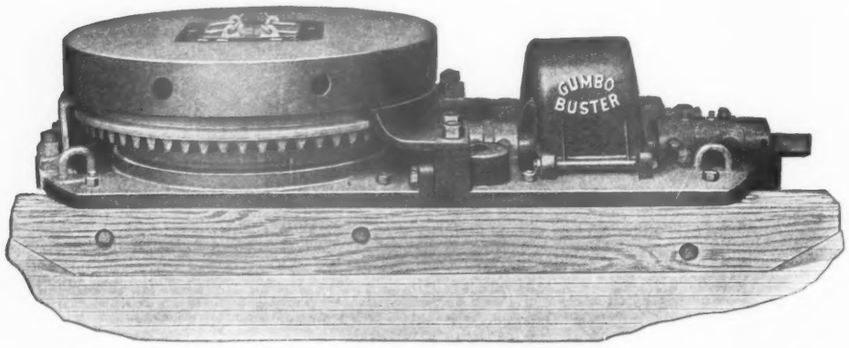
Sun Oil Co. is to spud in early this week on No. 1 Talley, in the Swearingen Survey east of Dale, and in the eastern edge of Caldwell County, where it has a block of leases and believes there is a Serpentine plug. The location is 650 feet from the northeast line and 1,650 from the southeast line of Survey. There is another test or two rumored in that county by major companies.

W. G. French is preparing to start a test in McMullen County on the Shiner ranch and in Duval County on the Gray ranch. The McMullen County test will be on his block of leases but will be drilled by other interests. George B. Pickett is to start soon in Duval County on the Ball ranch, south of Benavides, and also the National Oil Co. These, with other tests not yet ready to announce, will keep the average number of wildcat tests about on a level.

In Kerr County the Walker-Van Duyn

(Continued on Page 145)

A New and Improved Gumbo Buster 20″ Make and Break Rotary



This rotary still retains the many desirable features of the first Gumbo Buster Make and Break Rotary. Here are a few of the reasons for its superior service:

1. All working parts made from high grade cast electric steel.
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4. The top of the rotary table is smooth and level across the entire surface, which allows the slips to be slid across the table easily.
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A New and Important Improvement Has Been Made and Added to These Features:

The lifting ring in which the slips are placed has been lengthened in order to accommodate the new style long slips now in use. This new lifting ring backs up the long slips through their entire length, which decreases the danger of breaking the slips and swaging or "necking" the pipes.

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New Sunburst Pool Well 1,250 Barrels

Pitchfork Structure, Big Horn Basin, to Be Drilled This Season. Salt Creek Has 5,000-Bbl. Lakota Producer

By Frank B. Taylor
Staff Correspondent, Rocky Mountain Area

CASPER, Wyo., Apr. 2.—In the Sunburst Field in Montana, the Homestake Exploration Co. has taken over the deep test started by the Frazier and Inland interests on Section 7-35-1. The Homestake will drill the well on down for a test of the Devonian formation.

On Section 28-35-2, where a new pool appears to be developing, the California Petroleum Co. and others drilled in a large well that started off at 1,250 bbls. from the Ellis sand at 1,475 ft.

The Hill Syndicate, on Section 27-35-2, brought in a surprise well when the hole the company was drilling found production in a stray sand about 100 feet under the Ellis sand. This well found the Ellis sand dry and was drilling on down in an effort to find water when the production was found in this stray sand. It looks good for 50 bbls.

The Sunburst Oil & Gas Co. brought in a producer good for 25 bbls. in the Central part of the field, in the Ellis sand, at 1,498 feet.

Big Horn Basin

In the Big Horn Basin of Wyoming, the Producers & Refiners Corp. will drill the Pitchfork structure the coming season, according to plans made public recently. This is one of the minor structures of the Big Horn Basin which, while known for some years to the geologists and scouts, has been considered too deep or because of its probable black oil production was thought to be too far to pay for the prospecting. It is located in the foothills of the mountains of the Meeteetse country, on the Wood River.

Torchlight Field

C. E. Orchard purchased an interest in several holdings near Bas last fall and later consolidated his holdings with other purchases until he controlled the Torchlight Field, situated about 5 miles east of Basin. Recently, Mr. Orchard and the Producers & Refiners Corp. reached an agreement by which the Producers & Refiners, for a share in the Orchard holdings in the field will drill some deep tests this coming season. Work will start the middle of April, and the objective of the deep tests will be the Frontier sands. The Torchlight Field produces a very high-grade crude, composed mainly of the naphthas and some lubricating stock, but this oil comes from sand lenses in the shale, and the wells have gradually fallen to a very low production. In the weekly runs, Torchlight is included with Greybull, and of late the two fields have been averaging only about 20 bbls. daily.

This high-grade crude is thought to come from some deep sand, probably the Frontier; and as it rose towards the surface along fault planes in the shales, it underwent a process of filtration that eliminated the heavier parts of the crude. Working on this theory, several fields have been found in deeper sands in this region, and the Producers & Refiners Corp. appears to stand an excellent chance of obtaining deep-sand production at Torchlight.

The same conditions have led to wells being drilled at present at LaBarge and at Pilot Butte, where the oil found in the shale at shallow depth is considered to come from a "mother pool" somewhere below.

Operations in Utah

In Utah, the well of the Midwest Refining Co. and the Utah Southern Oil Co. drilling on the Shafer Dome is shut down at 5,290 feet, and repairs are being made to the drilling engine. As soon as this is done, the drilling will be resumed. The Cane Creek discovery well is shut down waiting on what the Shafer Dome well finds and also what the Snowden & McSweeney well at Cane Creek discovers there.

To recapitulate the work in the Moab district, the discovery well found production at 2,000 feet about a year ago and failed to shut off a flow of water that was coming in from above. After six months of work cementing different strings of pipe, etc., the two companies decided to drill the well down, and this well is now shut down below 5,000 feet with no other commercial showings than the one encountered at the 2,000-foot level.

The finding of oil in the discovery well at 2,000 feet influenced the two companies to start a second test on the Shafer Dome, about 5 miles south of the Cane Creek well, and this well has been drilled to more than a mile and nothing of commercial importance found. Snowden & McSweeney started a second test on the Cane Creek Dome that is now drilling about 1,000 feet and will make a test of the showing in the discovery well at 2,000 feet.

The Midwest Refining Co. then leased the Elk Ridge structure, about 40 miles south of the Cane Creek development, and started a wildcat there; this well is now at 1,350 feet with the 12½-inch pipe set and cemented.

Other companies secured leases and started wells. The Cedar Mesa well of the Utah Southern Oil Co. and the General Petroleum Co. is about 2,000 feet and running 10-inch casing. The Utah Southern Oil Co.'s well on the east anticline, San Juan County, is at 1,040 feet and will start drilling again within a few days. The Empire Gas & Fuel Co. has a test on the Gibson Dome at 1,872 feet, and the Embar Oil Co., on the Big Six Dome near the town of Moab, is at 3,200 feet and drilling. On the Cresent Dome, the Western State Development Co. is drilling about 1,400 feet.

Salt Creek Field

In the Salt Creek Field, the Midwest Refining Co. completed six new wells the past week; three of these were Lakota sand completions, and the other three were first sand and shale producers. All were productive, and one of the Lakota wells was over 5,000 bbls.

The Wyoming Associated Oil Co. drilled in a Lakota sand well on Section 26-40-79 that started off at 5,602 bbls. at a depth of 2,397 feet. A second Lakota well was drilled by the same firm on Section 35-40-79 that flowed 1,398 bbls. at 2,430 feet. On Section 26-40-79, the company found an average producer at 1,179 feet and one at 1,092 feet on the same section that will make a pumper after a shot.

The Midwest Oil Co. drilled in a Lakota sand well on Section 34-40-79 that made 1,783 bbls. from a depth of 2,467 feet, and on Section 25-40-79 the same firm found a producer good for 100 bbls. at 1,151 feet in the first Wall Creek sand.

On Section 12-29-79, the Ohio Oil Co. failed to find commercial production, and the well has been plugged back to the second Wall Creek sand and will be used as a key well to send waste gas from the gasoline plant into the sands to flow other wells on the lease.

All the recent wells drilled into the Lakota sand by the Midwest Refining Co. have been shut in until the production is required.

In the Big Buddy Field, east of Casper, the Continental Oil Co. went to the Lakota sand on Section 9-33-76 and has a producer good for 75 bbls. at 3,165 feet. Two other wells of this company on the Humphrey lease should be in the pay in the near future; one is at 3,271 feet and the other is at 3,075 feet and drilling.

The Elkhorn Oil Co. is expected to complete an interesting test in the Big Piney area, near LaBarge in southwest Wyoming. This company is one of the Casper firms that made good in the boom period by finding production in the Big Muddy Field, and the well at Big Piney is now at 3,285 feet and making some gas. It is thought that the well is now on top of the Frontier sands, and a completion may be expected at any time. The well is in a wildcat area on Section 7-28-11.

Salt Creek Producers Association, a corporation made up of several firms holding productive territory in the heart of the Salt Creek Field, has increased its annual dividend rate from $2.50 to $3 per share. This company was formed by the merger of several of the smaller holdings companies in Salt Creek and the Midwest Refining Co. is developing the holdings of the Salt Creek Producers Association under contracts.

New Pipe Line

The new pipe line that will carry gas from Buffalo Basin in the Big Horn Basin to a connection with the present system in the central part of the Big Horn Basin, being laid by the Midwest Refining Co. and affiliated interests, is making good progress. As the week closed, the trucks had strung a little over 50 miles of the 12-inch pipe and the ditching machines had dug some 10 miles of trench, while the telephone line is about half done.

In the new Dutton Creek development in Carbon County, near the Rock River Field, the Midwest Refining Co. has been storing the production of the discovery well, which is making about 90 bbls. daily. The Illinois Pipe Line Co. has laid a 4-mile line to carry this crude to

(Continued on Page 153)

ROYALITE TURNER VALLEY WELL STEADILY INCREASING PRODUCTION

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ont., Apr. 2.—In the Turner Valley Field southwest of Calgary, Royalite Oil Co. No. 4, LSD 12, Section 7-20-2w5, in February, produced 17,829 bbls., an average of 637 bbls. a day, compared with the January average of 608 bbls. The well is holding up and increasing the high production first recorded in December, when the average daily production went up to 594 bbls., compared with 528 bbls. in November.

Royalite Oil Co. No. 6, LSD 16, Section 31-19-2w5, is shut down at 3,114 feet, after cementing casing. Royalite No. 7, LSD 3, Section 13-20-3w5, a rotary test, is drilling at 1,445 feet with an 11-inch hole which it is hoped to continue to the Madison limestone.

Vulcan Oils No. 1, LSD 11, Section 13-20-3w5, is making a steady crude naphtha production of 125 to 130 bbls. a day. Vulcan No. 2, same LSD, has the derrick up and is installing machinery. The test will spud in early in April. Spooner Oils No. 1 LSD 12, Section 13-20-3w5, is at 2,985 feet and working on casing. At this depth the drill was working about 100 feet below the 10-inch string when it entered a bad caving formation. The casing parted around 2,200 feet. The drillers will pull the casing and clean out the hole. At this horizon the drill is about 250 feet in the Dakota sand. Spooner Oils No. 2, Section 24-30-3w5, will start rigging up this month.

Illinois-Alberta Oil & Refining Co., LSD 14, Section 12-20-3w5, has again blown into production, after being frozen for a couple of weeks. The well started again with about 4,000,000 feet a day of wet gas and about 75 bbls. crude naphtha, and is steadily increasing. A stair drip 12-feet high has been installed in addition to the separator.

Making Production Test

McLeod Oil Co. 2, LSD 16, Section 1-20-3w5, is at 4,045 feet and making a production test. It is expected that at this depth the well will make around 4,000,000 to 5,000,000 feet of wet gas with 100 bbls. of crude naphtha. When the production test is finished the drilling will be carried deeper. McLeod No. 3, same LSD, is at 700 feet and drilling. McLeod No. 1, same LSD, is a shallow pumper making 12 to 15 bbls. a day of light crude from a shallow sand at 2,400 feet.

Dalhousie Oil Co. No. 1, LSD 4, Section 18-20-2w5, after a shut down for repairs to the diamond drill is again drilling in cement at 3,595 feet, within 5 feet of the bottom of the old hole. Drilling will go on till the Madison limestone is definitely reached, when the 4½-inch casing will be cemented on top of the deep lime and the well drilled in. Dalhousie No. 5, LSD 16, Section 30-19-2w5, is reported drilling in the calcareous shales at 3,665 feet. Dalhousie No. 6, LSD 10, Section 13-20-3w5, is drilling at 2,415 feet with a 12½-inch hole.

New McDougall-Segur No. 1, LSD 14, Section 12-20-3w5, is on the pump about 13 hours a day and making 70 bbls. a day of 55 degree crude. New McDougall-Segur No. 2 has been located in the southeast corner of the same LSD, 200 feet from the east boundary of the lease on the side nearest the Royalite holdings. Work has been commenced on the cellar, and derrick timbers are being moved in. The test will be spudded in this month.

The Royalite Oil Co. crude naphtha line to the Imperial Oil, Ltd. refinery at East Calgary has been repaired following a temporary break due to ice in the Bow River.

Stockmen Oils No. 1, LSD one-half, Section 27-20-3w5, is drilling at 3,850 feet and apparently entering the Fernie shales. Okalta Oils, LSD 1, Section 1-20-3w5, is fishing for 1,900 feet of 12½-inch casing which dropped 300 feet in the hole. The casing has telescoped at the bottom, and it may be necessary to drill past some of the string. The test is down 2,700 feet. Regent Oil Co., LSD

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Seal Beach Nearing Critical Stage

Refusal of Pipe-Line Companies to Handle the Oil May Be Needed to Check Rush

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Apr. 2.—With pipe line companies refusing to handle the anticipated production expected to result from the completion of wells now drilling in the town lot section at Seal Beach, because of inability to store or dispose of the surplus under present conditions, the situation in that district has reached a critical stage and, unless some restrictive measures are taken soon, independent operators working in that area will undoubtedly experience considerable difficulty in disposing of their production. The Standard has been the only company to make a definite public announcement of its policy with regard to the handling of Seal Beach crude as published in The Oil and Gas Journal of March 31. Strenuous efforts have been made either to limit drilling operations or prorate the anticipated production which will result from the completion of new wells in the town lot section at Seal Beach. Many operators in this field recognize the necessity of curtailing operations and, while there is no unanimity of opinion, the outlook is favorable. Just whether producers will actually get together of course only the future can tell. The outlook is favorable but the writer doubts that the various interests can be whipped into line unless absolutely forced to adopt restrictive measures by the refusal of pipe line companies to handle this oil.

Four New Wells

Four new wells were finished in the Seal Beach Field during the week, two being located in the town lot area in close proxmity to the initial completion finished in that section late in February. The Pan American and Paul Getty started a fast race down to the pay immediately following completion of the former's extension well, No. 1 Naples, but the Pan American breezed across the wire a winner by approximately 20 hours. The most interesting feature in connection with the completion of these two new wells is that both hit the top of the pay higher stratigraphically than No. 1 Naples, the original extension well, despite both being further out on the structure. These new wells emphasize the necessity of adopting general restrictive measures.

The Pan American's new well, its second completion in the town lot area, is No. 3 Naples, which is just finishing its initial 24-hour test from 4,750 feet. This well is approximately 30 feet higher than No. 1 Naples nearer the older section and, while no actual figures are yet available, production during the first 12 hours indicated the well was flowing approximately 2,400 bbls. daily. This is slightly smaller than the initial production by No. 1 Naples, which has since declined to 2,350 bbls. The Pan American, which is running 15 strings of tools in the town lot section, should bring in Nos 2, 4 and 5 on this property shortly, as these three wells are all below the 4,500-foot level. No. 4 Naples, the deepest, is scheduled to be cemented within a few days and since the company has five other wells in the immediate locality, all below 3,000 feet, production will begin reflecting this work soon.

Disposal Difficult

Paul Getty picked up the top of the pay in his No. 1 Cleaver at 4,689 feet, or approximately 15 feet shallower than the top of the same Selover sand found by the Pan American in No. 3 Naples at 4,702 feet. Getty's well has just been turned loose flowing approximately 200 bbls. an hour, the equivalent of 2,400 bbls. a day. His future production depends upon his ability to dispose of this oil and, since none of the larger companies has agreed to accept this unrestricted output Getty will probably be obliged to load it out in tank cars or make tank wagon deliveries to independent refiners. This is the first completion of a number of new wells being drilled which may be pinched or shut in entirely due to lack of adequate transportation and storage facilities. If the principal major pipe line companies sit tight and refuse to handle this Alamitos Heights production the situation will automatically take care of itself, although, of course, some general price cutting may take place because of dumping on the open market. If on the other hand one large company capitulates others will probably follow and the sky will be the limit as far as future production is concerned. Paul Getty has five other drillers on the Cleaver property, two of which, Nos. 2 and 3, have just passed the 4,000-foot level.

The Associated successfully finished another flowing well on its Bryant lease in the extreme eastern part of the Seal Beach Field and will probably have another, No. 4, on production within 10 days. The company's latest completion was No. 6 Bryant, drilled to 4,420 feet and finished with an 8⅝-inch oil string. Flowing through three-quarter inch bean under a pressure of 450 pounds, it tanked 1,095 bbls of exceptionally clean 23.5 gravity oil during the first 24 hours. On the Hellman property to the east where the Associated recently completed its first producer the company has No. 10 down 4,000 feet and it should, barring mechanical trouble, be on production within three weeks. The Marland's No. 10 Bixby, carried down 4,330 feet and finished with an 8¼-inch oil string, made 1,175 bbls. of clean 24.4 gravity oil daily on its initial test. This well is flowing through a three-quarter inch bean under a pressure of 650 pounds. No. 10 Bixby and No. 6 Bryant, located in the older section, were finished in the upper or Bixby zone, while the two new wells completed in the town lot area to the west are producing from the lower or Selover horizon. The Marland has three new wells on the Bixby lease in the older section standing cemented just above the pay and it is possible one or more of them will be finished during next week. The company's operations on the Selover property at present are concentrated just east of the town lot area, this drilling being necessary to protect its acreage against undue drainage.

Principal Operators

The largest single operators in the town lot section are the Pan American, Petroleum Securities, California Petroleum, General Petroleum, George F. Getty, Paul Getty and Superior Oil Co.. The Doheny interests, Pan American and Petroleum Securities, by virtue of their pioneering, are naturally doing more development work than any other single operator. The California Petroleum, with 10 wells actually under way, should bring in three or four about the end of April. This hardly seems possible but this district is conducive to fast footage and the exact completion dates depend more or less on the efficiency of each crew. The exact time required to complete the Pan American's last well and Paul Getty's No. 1 Cleaver, which came in shortly afterward, has not yet been computed but it was somewhere around six weeks from spud to completion. The General Petroleum is stepping along with its development program on the Wason property on which eight strings of tools are in operation. George F. Getty, with five wells under way, and the Superior, with three drilling projects to its credit, are also making good footage. The California Eastern is getting off to a rather slow start but work is being pushed in the hope of getting its five projected wells under way as soon as possible.

Ventura

Two new wells were finished in the Ventura Avenue Field, one of which, the Associated's No. 19 Lloyd, registered an exceptionally large initial. It came in

(Continued on Page 137)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, Well and Location—	S-T-R	Depth	Status
Smith Pet. Co., No. 1 Johnson, Hawthorne	17- 3-14	6,065	gr. sd. drilling
General Pet., No. 1 Smith, Potrero	35- 2-14	4,290	sd. sh. drilling
General Pet., No. 1 Guiberson, Potrero	35- 2-14	Rig	wait. devel.
Calif. Eastern, No. 1 Smith, Potrero	35- 2-14	5,282	suspended
Calif. Eastern, No. 1 Santa Monica, Potrero	27- 2-14	Mtl.	building rig
Associated, No. 1 Cypress, Potrero	34- 2-14	4,450	cmtd. oil sand
Getty, Geo. F., No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Getty, Geo. F., No. 2 Cypress, Potrero	34- 2-14	Rig	abandoing
Getty, Paul, No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
California Pet., No. 1 Sutton, Potrero	34- 2-14	Rig	wait. devel.
California Pet., No. 1 Toms, Potrero	35- 2-14	Rig	wait. devel.
California Pet., No. 1 Armour, Potrero	35- 2-14	Rig	wait. devel.
Cole, Fred E., No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Dill Oil Co., No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Walker, Fred, No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Potrero Oil Co., No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Dominguez Exten., No. 1 Compton, Dominguez	22- 3-13	5,390	sd. sd. drilling
Getty, Geo. F., No. 1 Anderson, Rivera	.....	....	location
Circle Oil Co., No. 1 Pomeroy, Manchester	22- 3-14	3,358	suspended
Standard, No. 1 University, San Fernando	15- 2-15	5,745	hd. sd. drilling
Standard No. 1 Austin, Topango	11- 1-17	2,470	hd. sd. drilling
Sou. Calif. Drlg. Co., No. 1 Matteson, El Segundo	1- 3-15	4,550	sd. sh. drilling
Petroleum Sec., No. 1 Weston, El Segundo	27- 4-14	665	set pipe
Calif. Pet. Dev., No. 1 Spitz, Capistrano	2- 8- 8	4,000	idle—rain
E. J. Robinson, No. 1 A. P. K., San Juan Capistrano	13- 8- 8	2,414	gas show
Cardiff Oil Co., No. 1 Oceanside, San Diego	24-13- 4	2,400	sd. sh. drilling
Oceanside Oil Co., No. 1 Pacific, San Diego	23-11- 5	3,210	suspended
Petroleum Sec., No. 1 DeBaker, Bandini	18- 2-12	5,550	br. sh. drilling
Union, No. 1 Moser, Athens	12- 3-14	5,690	fishing
General Pet., No. 1 Lomita, Sunset Beach	19- 5-11	4,750	hd. sd. drilling
Johnson, Geo. W., No. 1 Wickham, Los Angeles Co.	32- 5-17	2,839	test. show
Rider, E. R., No. 1 El Segundo, Los Angeles Co.	12- 3-15	2,300	suspended
Green, H. M., No. 1 Structure Hole, Los Angeles Co.	27- 1-13	1,400	suspended
Reliance Home Inv. Co., No. 1 Leuzinger, Los Angs.	8- 3-14	Mtl.	building rig

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Associated, No. 1 Smith, Kettleman Hills	12-23-18	2,043	suspended
Bosa Chica, Well No. 1, Kettleman Hills	30-23-19	2,365	suspended
General Pet., No. 1 Burbank, Kettleman Hills	30-23-19	3,165	bl. sh. drilling
General Pet., No. 1 Dome, Kettleman Hills	26-22-18	Mtl.	building rig
C. C. M. O., No. 1 McGlashan, Kettleman Hills	17-24-19	630	sd. drilling
South Coalinga, Well No. 1, Kettleman Hills	35-24-19	2,150	bl. sh. drilling
Ahlburg Gas Co., Well No. 1, Kettleman Hills	7-23-23	Rig	rigging up
Milham Expltn., No. 1 Kettleman, Kings Co.	2-22-17	550	hd. sd. drilling
Shell, No. 2 Berlywood, Moorpark	32- 3-20	2,390	hd. sd. drilling
California Pet., No. 1 Camarillo, Ventura Co.	21- 2-20	1,870	hd. sd. drilling
C. C. M. O., No. 1 Hobson, Ventura Co.	22- 3-24	5,855	cmt. fish
C. C. M. O., No. 1-B Hobson, Ventura Co.	16- 3-24	3,128	bl. sh. drilling
Milham Expltn., No. 1 Sexton, Ventura Co.	19- 3-22	7,100	fishing
Standard, No. 1 Camarillo, Ventura Co.	29- 2-20	4,950	fishing
Standard, No. 1 Montalvo, Ventura Co.	17- 2-22	4,750	gr. sd. drilling
Petroleum Sec., No. 1 Diablo, Ventura Co.	4- 4-18	1,320	idle—rain
Miley Expltn., No. 2-A Casitas, Ventura Co.	7- 3-25	550	idle—rain
Rio Grande, No. 1 Canet, Ventura Co.	9- 3-23	4,944	oil and gas
Parkford, E. A., No. 1 Strathern, Ventura Co.	5- 2-18	2,275	sd. sh. drilling
Star Petroleum Co., No. 1 Canet, Ventura Co.	13- 3-23	3,210	fishing
Richfield, No. 1 Janes, Ventura Co.	16- 5-18	1,650	idle—rain
Richfield, No. 27 Piru, Ventura Co.	35- 5-18	1,480	idle—rain
Superior, No. 1 Pena, Ventura Co.	18- 4-17	3,220	sd. sh. drilling
Milham Expltn., No. 2 Buttonwillow, Kern Co.	8-28-23	4,190	hd. sd. drilling
Milham Expltn., No. 3 Buttonwillow, Kern Co.	7-29-24	Mtl.	building rig
Pacific Eastern, No. 1 Bakersfield, Kern Co.	6-30-28	3,890	hd. sd. drilling
C. C. M. O., No. 1 Quinn, Delano	23-25-27	385	sd. drilling
Union, No. 1 Gill, Famosa	8-28-27	3,281	suspended
Union, No. 1 Colm, Kern Co.	24-28-20	1,070	bl. sh. drilling
Standard, No. 1 Bacon, Kern Co.	27-28-20	.....	location
Marland, No. 1 Jacalitos, Fresno Co.	22-21-15	3,750	land pipe
Petroleum Sec., No. 1 Aniotz, Monterey Co.	2-22- 9	1,800	hd. sd. drilling
Petroleum Sec., No. 1 Sandy, Monterey Co.	18-27-13	.....	location
Ozena, No. 1 Allensworth, Tulare Co.	26-24-24	2,300	bl. sh. drilling
Grafford, C. W., Well No. 1, Tulare Co.	26-24-24	2,525	suspended
Walklin Pet., No. 1 Emerick, San Luis Obispo Co.	35-27-10	2,470	redrilling
Richfield, No. 1 Wreden, San Luis Obispo Co.	10-29-17	Rig	suspended
Shell, No. 1 Cowell, San Mateo Co.	16- 5- 5	2,270	hd. sd. drilling
Shell, No. 1 Murphy, Petaluma	29- 5- 6	4,750	hd. sd. drilling
Talbot Oil Co., Well No. 1, Alameda Co.	15- 3- 3	515	sd. sh. drilling

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This week	Daily Average	Total Last week	Daily Average	This year To date	Same time Last year
Crude oil	112,928	16,133	.....	.....	1,660,359	3,191,531
Fuel oil	143,041	20,434	.....	.....	1,988,349	1,772,236
Diesel and gas oil	.....	.....	152,428	21,775	1,019,661	390,858
Gasoline	74,452	10,636	.....	.....	1,657,743	1,407,634
Tops	.....	.....	.....	.....	.....	149,906
Coastwise—						
Crude oil	508,358	72,623	623,852	89,122	6,351,747	6,012,458
Fuel oil	232,104	33,158	150,024	21,432	3,133,193	2,074,393
Diesel and gas oil	.....	.....	7,139	1,020	53,071	82,854
Gasoline	75,123	10,732	153,899	21,986	1,827,189	1,657,273
Kerosene	.....	.....	4,867	695	40,605	46,499
Tops	.....	.....	.....	.....	.....	127,421
Exports—						
Crude oil	.....	.....	.....	.....	727,007	641,498
Fuel oil	393,020	56,146	315,823	45,118	6,076,523	3,899,068
Diesel and gas oil	12,005	1,715	19,166	2,738	175,938	103,899
Gasoline	.....	.....	101,346	14,478	403,822	831,661
Kerosene	146,711	20,959	.....	.....	573,343	532,298

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	251,458	413,059
Gasoline	78,184	11,169	.....	.....	586,100	267,717
Lubricants	.....	.....	.....	.....	58,110	52,025
Coastwise—						
Fuel oil	152,912	21,845	120,600	17,229	1,310,769	1,279,574
Diesel and gas oil	.....	.....	.....	.....	134,308	.....
Gasoline	49,144	7,021	29,450	4,207	1,034,337	956,889
Kerosene	.....	.....	4,788	684	30,674	96,248
Exports—						
Fuel oil	.....	.....	.....	.....	295,851	533,274
Gasoline	22,917	3,274	52,087	7,441	933,050	480,629
Kerosene	10,480	1,497	29,418	4,202	249,202	358,048
Lubricants	.....	.....	.....	.....	9,120	9,093

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Luling, Tex.
Mirando City, Tex.
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LESS ENGINES

High Gravity Oil in Edmonson County

Ambrose Field in Ohio County Most Active in Kentucky. Operators Go to Amory, Miss.

By Whit
Staff Correspondent, Kentucky-Tennessee

BOWLING GREEN, Ky., Apr. 4.—Just at this time the Ambrose Pool, in Ohio County, is attracting more attention from operators than any other section of Kentucky. This is due to the size of the producers and the shallowness in which the oil is being found. During the past several days many visitors have been looking over the territory between Pellville and Hartford, but few small pieces even can be found not held under lease. Weather conditions are yet unfavorable for activity, and the mud roads must dry so that material can be hauled from the supply points to the field before much can be done. The source of supplies is nearly 10 miles away from the Ambrose Pool, which is at Whitesville, but attempts are being made to secure a supply store for Hartford, which is only a few miles south of the big production. That will naturally come about if oil is found south of Hartford, which is the county seat and a thriving little city.

The striking of a productive pool like the Ambrose is bound to mean much for the county, and the production of last week's wells, which was estimated, was smaller than their initial production. The best of those wells was the Julius C. Miller's No. 5 well, 125 feet from the north and south lines, 2,250 from the east line and 500 from the west line of the Ambrose heirs' 14 acres, adjoining the J. R. Weiler farm, to the north. A string of 659 feet of casing was set in this well. Top of sand was at 616 feet and bottom at 659 feet, then drilled to a total depth of 671 feet and shot with 150 quarts. The initial production was 350 bbls. The Rex-Pyramid Oil Co.'s No. 3 well, 1,000 feet from the north line, 125 from the south line, 900 from the east line and 1,100 from the west line of the W. Scott Ambrose 52 acres, west of the Ambrose heirs and north of the J. R. Weller farm, that was reported showing for 40 bbls., actually had an initial 24 hours' production of 175 bbls. This well had 638 feet of casing, top of sand at 637 and bottom of sand 659 feet, and drilled to 671 feet, and was given a 160-quart shot. It is an offset to No. 3 on the Ambrose heirs farm, which had an initial of 150 bbls. James C. Ellis's No. 6, in the northwest corner of the J. R. Weller 110 acres, set casing at 576 feet, struck top of sand at 577 and bottom at 616, where it was shot with 100 quarts, with an initial production of 150 bbls. No. 7 well, 125 feet from the north line and 800 from the west line of the same farm, cased at 575 feet, found top of sand at 574 feet and bottom of sand at 616 and drilled to 616 feet, and was given a 140-quart shot. The initial production was 225 bbls. When wells the caliber of these can be found in Kentucky, it naturally makes the average operator look toward the new pool as one of the outstanding spots in the Blue Grass State at this time. Many years ago some development work was done north of Hartford by operators from Toledo, but the wells were so small they were considered worthless and little attention was drawn to what is now the most productive area of the entire State.

Find in Edmonson County

Another development that may mean something in the immediate near future is the finding of an oil well in Edmonson County, between the Warren and Ohio County Fields. This find was made on the John Poteet farm across the Green River from Mammoth Cave and 7 miles east of Kyrock. It was shot Saturday with 40 quarts at a total depth of 1,142 feet, and is being estimated good for better than 10 bbls. of a high gravity crude. This test is in the asphalt country, where tons are mined daily. Large areas have been leased in the county the past few days and attempts are being made to open up a producing area in Butler County, which adjoins. The oil in the Poteet well is not the same as that found in Warren County, being more like the Barren County product.

Mississippi

Down in northeastern Mississippi, near the Alabama line, there is considerable excitement in leasing and numerous wells are to be started as soon as material and drilling outfits can be secured. This excitement is due to the bringing in some time ago of the big gas well on the Carter farm. Allen Thornton of Bowling Green has gone to Amory. George McGinley has sold his interests in the Bowling Green Field to Onsel Brothers and has also gone to Amory, as well as several other operators from the western Kentucky Field.

Week's Work

The summary of the week's work in the Kentucky-Tennessee fields show 24 completions, 20 producers, with an initial production of 772 bb's., 2 dry holes and 2 gas wells. When compared with the previous week, there were 2 less completions, 2 less producers, 448 bbls. less production, 2 less dry holes and 2 more gas wells. The wells were distributed by counties and districts as follows:

	Oil				
County—	Comp.	Wells	Prod.	Dry	Gas
Barren	6	4	58	2	0
Ohio	4	4	435	0	0
Cumberland-Monroe	4	4	47	0	0
Clinton	1	1	150	0	0
Warren	1	1	20	0	0
Edmonson	1	1	10	0	0
Daviess	1	1	5	0	0
Wayne	2	2	37	0	0
Johnson-Magoffin	2	2	10	0	0
Floyd-Knott	2	0	0	0	2
Total	24	20	772	2	2
Last week	26	22	1,220	4	0
Difference	2	2	448	2	2

Eastern Division

One of the best completions reported from the Monticello Field of Wayne County, in the eastern division, for many months brings about more interest in that old-time county, which in 1903 was a beehive of development work. The well was drilled in District 3 by John Dillon on the Eli Phipp farm, a short distance in advance of development, and is credited with an initial of 35 bbls. A well of this size in the Beaver sand should stir up some new work, as nothing but very small producers have been found during the past year, and a well of this capacity should encourage more drilling. Pipe-line facilities cover every spot of oil worth in Wayne County, and give a ready market for the crude, as the oil is handled by the Cumberland Pipe Line Co. In District 13, same county, Kennedy, Taylor and others' No. 5 J. B. Stinson farm, pumped 2 bbls. from the Beaver sand.

In the South Wier Field of Johnson-Magoffin County, District 30, the Andy Lick Oil Co. has a 5-bbl. pumper in No. 1 on the Roscoe Gullette farm. In District 31, Santford & Outram's No. 1 on the Jack Whittaker farm, is a 5-bbl. pumper from the Weir sand.

Two nice gas wells were completed by the Distill-Martin Oil & Gas Co. on the F. R. Hayse and James Martin farms, in District 21, of Floyd and Knott Counties.

Western Kentucky

The most important development in the western division was the completion by the Green River Oil Co. of a wildcat well on the John Poteet farm, across the Green River from Mammoth Cave and 7 miles east of Kyrock, in Edmonson County. The well struck top shale at 1,015 feet, and the pay sand, which was a light brown, was struck at 42 feet under the shale, the well being drilled to a depth of 1,142 feet. The sand is different from the Warren County lime in color and corresponds more nearly with the Barren County formation. The Illinois Pipe Line Co. pronounced the test to be 44 gravity. After given a shot, 5 bbls. of oil were bailed from the well in a short time. This section of Edmonson County was chosen for a wildcat test because of a recent government geological survey that showed two structures north of Mammoth Cave and Green River and east of Nolin River. Miss Margaret Hobson of Bowling Green leased about 12,000 acres covering the two structures and had it checked in detail by geologists. The Green River Oil Co., with headquarters at Kyrock, Ky., is a new company that was organized to do a portion of the testing on the Big Hollow structure. G. H. Pyle is the president of the company and also the contractor. Lee Percy, the assistant manager of the Kyrock Co., is treasurer, and H. C. Carmichael, the manager of the Kentucky Rock Asphalt Co., is one of the directors of the Green River Oil Co.

The well on the Poteet farm, although a small one, proves that it is on structure, and more wells will be started at once, as it will not be necessary to wait for a pipe line, as the oil can be gravitated to Green River, which is only 1 mile away, and barged to Louisville refineries, where a premium will be paid over the regular posted price. The brown lime is just above the formation in which the Glasgow oil of Barren County is found. The next well drilled will test out the second sand. According to advice, it required a year's time to round up the block of leases and have it mapped geologically, and also a farm map. The block of leases is on the edge of the Mammoth Cave National Park's proposed area. The new highway to Mammoth Cave has been completed. The test may mean the opening of an entirely new producing area for the western division, being northeast of Warren County and northwest of Barren County and southeast of Hart County.

Ohio County

Ohio County has more good wells being completed than any other county in the State. Nothing has been developed yet in the south end of the county, where excellent structures are reported to have been found. Work is moving southward as the operators are feeling their way carefully. The E. M. Treat Co., Ohio Oil Co., Rex-Pyramid Oil Co. and the Petroleum Exploration Co. are all holders of leased acreage on structures in the southern portion of the county.

In the Ambrose Pool, Julius C. Miller's No. 6 in the northwest corner of the Ambrose heirs' 14 acres, north of the J. R. Weller farm, is a 200-bbl. initial producer. The well have 646 feet of casing, top of sand at 648 feet and bottom of sand at 693 feet, drilled to a total depth of 711 feet and shot with 160 quarts in the Jett sand. The Ohio Oil Co.'s test in the southeast corner of the Romia Taylor lease, adjoining the Ambrose heirs' 14 acres, is estimated good for 50 bbls. on the pump. Wood Oil Co. is drilling a test on the Mary J. Elmore 100 acres, west of the W. Scott Ambrose 52 acres and northwest of the J. R. Weller 110 acres. Should this well prove a producer it will widen the Ambrose Pool both to the north and west. James C. Ellis is drilling Nos. 8, 9 and 10 on the J. R. Weller 110 acres; Julius C. Miller is drilling No. 7 Ambrose heirs' 14 acres; Rex-Pyramid Oil Co. is drilling Nos. 4 and 5 on the W. Scott Ambrose 52 acres, and the Ohio Oil Co. is drilling No. 2 on the Romia Taylor farm. Lee & Engle are drilling No. 2 on the J. Bartlett 102 acres, southwest of the J. R. Weller 110 acres.

In Wood Oil Co.'s No. 1 on the Wallace farm, near Aetnaville, and northeast of Deanfield, adjoining the Harris farm, a string of 684 feet of casing was set; top of sand at 692 feet and bottom at 704 feet; drilled to a total depth of 717 feet and given a 60-quart shot, it responded with a 10-bbl. initial production.

The Creek Drilling Co. is drilling a test on the R. Mickey 140 acres, south of the South Fork of Panther Creek, adjoining the Dave King farm, in the King Pool, on the south.

H. A. Henry, who bought the holdings of the Kentucky Oil Co., is starting a well on the S. V. Flowers 32 acres.

Barren County

Just now the Emery Moore and Lee Pools are leading in active work in the Glasgow Field of Barren County. In the Emery-Moore Pool, Sinning, Hedges & Merrifield's No. 3 on the Hale farm, is rated at 8 bbls. initial production.

In the Hall Baker Pool, A. W. Zieg and others' No. 7 on the Darter farm is a 20-bbl. pumper.

In the Lecta Pool, about 3 miles southeast of Glasgow, Hunt, Mitchell and others have a 20-bbl. pumper at No. on the Vance Taylor farm and are drilling Nos. 5 and 6, same farm. Norris Brothers' No. 2 Jones farm pumped bbls. at 420 feet, and drilling No. 5. Sanson, Norris Brothers and others' No. on the Browning farm is a duster. Wo Oil Co.'s No. 1 Pace farm is also a dust J. D. White is drilling No. 1 Nichol farm. Norris Brothers' No. 3 Jon Sanson, Norris Brothers and others' 4 on the Browning and Pedigo & Payn No. 1 Browning are all drilling.

Cumberland-Monroe Counties

Late advice from the Hopewell Pool northern Cumberland County is that production from the big well is show quote a drop. In this area, Sam Baird's No. 2 on the S. Elliott farm reported at 2 bbls.

On Williams Prong of Sulphur Cre the Oil Fork Development Co.'s sec well on the John Finley farm is ra good for 10 bbls. at 422 feet.

On Pulsey Creek, McClintock, Reed Heckathorn's No. 4 on the H. M. Hug farm is reported at 25 bbls., while No is a 10-bbl. producer from a depth of feet. This well is awaiting a shot wh may improve its output materially. Ro in this area are in very bad shape, an is almost impossible to get around af

The one-time big well on the Gri farm, in northern Cumberland Cou went dry in the upper Sunnybrook was drilled to 200 feet below the Pe Cave formation, missing the second S nybrook entirely, and is dry as a b below the cave at this writing. This characteristic of Cumberland County a whole.

Clinton County Well

One of the good producers in the so central part of the State is McC.int Reed & Heckathorn's No. 6 on the Pi Brothers' lease on Wolf River in Cli County. This well is an actual 150- producer, but is being pinched in, acc ing to the owners, on account of low price of crude. With an advanc crude prices, this county will show revival of operations.

Other Fields

In Daviess County, the Leeper Co.'s No. 2 on the C. D. Veach fa southwest of Pellville, and an offset its No. 3 on the Roby lease, is a 5- pumper.

(Continued on Page 108)

14 Years of Service
AND AGAIN PUT TO WORK
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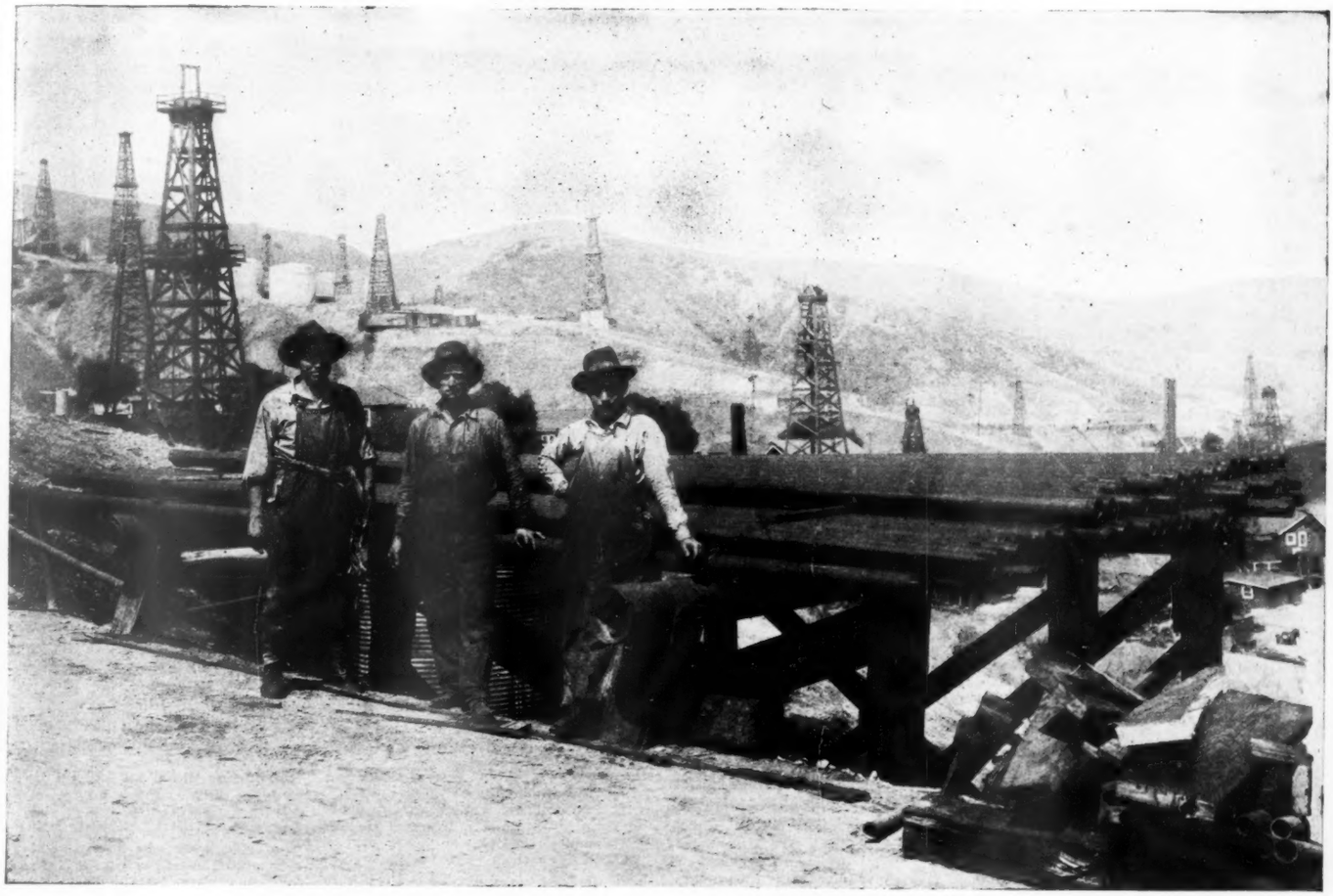


THIS String 3366 feet of 3″ 8½ lb. 11½ thread Reading Regular Genuine Wrought Iron Tubing has had to date a successful production life of 14 years . . . . during all that time it was in use in well No. 43 of the General Petroleum Company in the Brea Canyon field. No trouble of any kind was experienced — no leaky joints or splits — nor was the string ever dropped through any fault of the tubing. When the string was pulled recently it was carefully inspected, slightly reconditioned and again placed into service in a well of the General Petroleum Company at Santa Fe Springs.

READING TUBING
GENUINE WROUGHT IRON

READING IRON COMPANY DALLAS, HOUSTON, TULSA, SHREVEPORT, LOS ANGELES READING, PENNSYLVANIA

Illinois Fields Lead Central West

Allendale Has 80-Bbl. Producer and Friendsville Field 75-Bbl. Completion. Jay County, Indiana, Has Two

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Apr. 2.—Little was accomplished by the drill in the Central West Field comprising central Ohio, Lima Field, Indiana and Illinois, for the past several days, as the blustery weather and uncertain depths of mud on the country roads kept even the drilling crews at home. No completions were reported from the Central Ohio Field and the other three divisions showed but 21 new wells, of which 6 were dry holes, 3 gas wells and an initial production of 326 bbls.

The week's best completion was an 80-bbl. producer on the Breen farm, in the Allendale Field, of Wabash County, Illinois, and a 75-bbl. test on the Kean farm near Friendsville, in Friendsville Township, same county, and a 20-bbl. natural producer from the McCloskey sand in No. 19 on the L. M. Seed farm, Dennison Township, Lawrence County.

Indiana's best well was a test on the A. C. Brown farm, Penn Township, Jay County, for 35 bbls. and a 30-bbl. producer on the Brinkerhoff farm, in Bear Creek Township, same county. Three dry holes were reported from the new development on the 1,600-acre block of territory in Veale Township, Daviess County, where heretofore good producers were found close by.

In the Lima Field, the best well showed but 10 bbls., and was drilled on the Charles Geldin farm, in Webster Township, Wood County, between Perrysburg and Bowling Green.

Lima Field

Mack P. Colt, well known Lima, Ohio, operator, who recently purchased the producing properties of the Sun Oil Co., and the pipe lines and storage of the Sun Oil Line Co., in Wood, Hancock, Sandusky, Seneca and Lucas Counties, is making preparation to pull all wells that are not commercial producers, and also to take up the 200 to 300 miles of pipe lines, and after assorting will dispose of a part of it in the fields east of the Rocky Mountains. While there were 300 wells in the deal a portion of them that are commercial producers will be turned over to the Oko Oil & Gas Co., of which Mr. Colt is president. If the material is piled in one pile, it will require a large plot of ground, possibly at Lima or near Toledo. The Oko Oil & Gas Co. contemplates quite a drilling campaign in the Lima Field during the coming summer and will have plenty of material for the work. Mr. Colt has not announced whether the company will do any new work this season on holdings in Kansas and Oklahoma.

The Waterville Gas & Oil Co. drilled in a light gas well at a test on the H. C. King property, NE, Section 20, Waterville Township, Lucas County. The well is 195 feet from the south line and 1,900 feet from the west line of the lease. Top of Trenton at 1,153 feet and drilled 87 feet in the sand.

John Geldin and others' No. 7, in the northwest corner of the Charles Geldin farm, NW, Section 22, struck top of sand at 1,227 feet and at 27 feet in the sand, showed an initial of 10 bbls. The Ray Oil Co., on the William Roller farm, same section, is getting close to the sand with No. 3 well. In Liberty Township, Walden & Evans' second well, in the southwest corner of the Orpha Walden farm, NW, Section 9, pumped 3 bbls. initially. Sand was topped at 1,257 feet and drilled 143 feet in the sand to a total depth of 1,400 feet. Hulse & Kuntz have a rig in for No. 2 on the E. A. Judson farm, Section 3.

Vossler and others are drilling No. 5 on the C. Vossler farm, Section 16, Douchouquet Township, Auglaize County, and in Washington Township, same county, near Wapakonetta, Campbell and others are working at a test on the John Kogge farm, Section 4.

The Ohio Oil Co.'s No. 9, in the northwest corner of the J. H. Myers farm, NE, Section 30, struck top of sand at 1,263 feet and went 294 feet in the sand to a total depth of 1,557 feet, getting a 6-bbl. pumper.

In Butler Township, Mercer County, L. J. Lantz is drilling No. 3 William Miley farm, Section 19. In Dublin Township, same county, the Elizabeth Oil Co. abandoned old Nos. 1, 2, 3, and 4 on the J. B. Pulskamp farm, Section 12.

In Cynthian Township, Shelby County, the Ohio Oil Co.'s No. 5, on the Thereasa Goffena farm, Section 24, is a 7-bbl. pumper. Lee A. Watson is drilling No. 2 on the J. A. Barhorst farm, Section 34. L. T. McGrath is drilling No. 4 J. Ernst farm, Section 3, McLean Township, same county.

The Forest Oil & Gas Co. is drilling a wildcat on the Robert Patterson farm, in Washington Township, Hardin County. A. W. Neely and others are drilling No. 3 on the Oscar J. Current farm, Section 10, Mississinewa Township, Darke County.

Indiana

Indiana had a fairly good week in number of completions, although there were but 3 oil wells, with a combined initial of 75 bbls., 5 dry holes and 2 gas wells. In the old Portland-Geneva Field of Jay County, in the Trenton Rock area, Ridenour and others' test, on the A. C. Brown farm, Section 33, Penn Township, had an initial production of 35 bbls., while in Bear Creek Township, same county, Russell P. Ridenour, trustee, drilled in a 30-bbl. initial producer in No. 3 on the C. Brinkerhoff farm, Section 21. These two wells will no doubt speed up development in their respective areas, as wells of the size are hard to find in the old territory.

In Blue Creek Township, Adams County, Paul Schulte and others' No. 3, on the George Swank farm, Section 20, is a fairly good gas well and the same firm is drilling No. 1 John Cross farm, same township. In Jefferson Township, same county, Homer Pontius and others abandoned Nos. 1 and 2 on the William Kerr farm, Section 7, and Raymond Grims did the same with No. 1 on the Scott McDonald farm, Section 5. George Slee Oil & Gas Co. is drilling No. 1 on the W. Greenfield farm, Section 6.

In southwestern Indiana, Bell Brothers are drilling a test on the George Annis farm, Section 28, Center Township, Gibson County, also drilling No. 2 on the M. M. Conrad farm, Section 10, Barton Township, same county.

In Madison Township, Pike County, the Ohio Oil Co.'s No. 6, 375 feet from the south line and 650 feet from the west line of the N. B. Coffman farm, SE, Section 26, pumped 10 bbls. initially. Sand was topped at 960 feet and drilled 33 feet in the sand and shot with 100 quarts. In Washington Township, Molton and Noble's test, 660 feet from the south line and 220 feet from the west line of the Weathers farm, SW, Section 13, was a dry hole at 1,162 feet. A. B. Bement is starting a test on the County Farm, same section, also drilling a second test on the Elder Catt farm, Section 14, Clay Township. In Logan Township, same county, the Wiser Oil Co. is starting No. 3 on the Ern G. Wilson farm, Section 13. Henry Skidmore has a rig in for No. 4 E. Beck farm, Section 24. Andrews & Burden are drilling a test on the Anna E. Falls farm, Section 14, and Claud Chandler and others are drilling No. 1 on the Lona Miley farm, same section.

Section 28, Veale Township, Daviess County, got a hard bump the past week by the completion of three dry holes on territory that was looked upon as almost certain for production by wells already found on all sides. The three dusters were found by Hartman, Sargent and others, sometimes reported as Geiger and others. Among them are: No. 1, in the northwest corner of the Frank Swan farm, at a depth of 1,400 feet; and in the NW, Section 28; No. 1, in the southeast corner of the Sylvester Swan farm, NW, same section, at 1,626 feet, and No. 1, 300 feet from the north line and 650 feet from the west line of the Andy Trees farm, SW, Section 24, at 1,150 feet.

In Turman Township, Sullivan County, G. G. Billings and others have a duster at a test on the James Huff farm, Section 35. Raley Oil Co. is drilling No. 3 on the Alex Raley farm, Section 28. In Fairbanks Township, the Ohio Oil Co. is drilling No. 1 on the L. B. Hale farm, Section 4, south of Thompson.

A. R. Morris, or the Siosi Oil Co.'s test, on the William Riggs farm, Section 31, Prairie Creek Township, Vigo County, is a gas well with a rock pressure of 40 pounds. No. 2 is under way on the same farm.

Illinois

The completion by Miller and Lengelsen of a 75-bbl. initial producer on the A. B. Keen 35 acres, NW SW, Section 19, Friendsville Township, Wabash County, Illinois, and a mile east of the town of Friendsville, brings that area once more into the limelight. The well is a little north and nearly half a mile west of the initial well on the Ezra Bass farm, that showed an initial some months ago of around 200 bbls. The well is about 3 miles west and 1½ miles north of the river town of Patton, and 1½ miles south and about 6 miles west of Allendale. Same firm is drilling a test on the Crum farm, over a mile north of Friendsville. The location of the Keen well is in the northwest corner of the lease, and sand was topped at 1,607 feet and oil found at 7 feet in the sand.

In the Stillwell Pool, near Allendale, the Breen Oil Co.'s No. 2, on the John Breen farm, Section 2, Wabash Township, and 200 feet from the north line and 1,250 feet from the east line of the lease, tapped the sand at 1,387 feet and at 11 feet in the sand produced an initial of 80 bbls. Ellison and others' No. 7 well, 600 feet from the north and east lines of the Collison heirs' farm, SW, Section 12, found top of sand at 1,450 feet and at 12 feet in sand, the well showed 45 bbls. initial production. A. L. Gher and others are drilling No. 1 on the E. Banks farm, Section 31, and northeast of Allendale.

Mount Vernon Development Co. is drilling a test on the John Knohloff farm, NW, Section 6, Brookside Township, Clinton County.

In Dennison Township, Lawrence

(Continued on Page 108)

SAGINAW SAND WELL 250 BBLS.; FIVE MORE AVERAGE PRODUCERS

By Whit

SAGINAW, Mich., Apr. 3.—While oil men continued to speculate regarding the potential resources of the Saginaw sand, the Sun Oil Co.'s Ferdinand Stelzreide well, which started all the excitement showed a gradual decline in production, though men conversant with the producing end of the industry said that it was no more than might be expected, which is usually the case with wells in all fields of the country. With its production around 250 bbls. the preceding 24 hours, the tools were run in the hole on Friday and drilled a little deeper which seemed to help its flow, but company officials were uncertain whether the strengthening flow was due to additional oil in the greater depth of sand drilled, or was merely due to the agitating of the oil and consequent release of additional gas pressure.

Computations Friday showed that the well so far had made a total of about 1,510 bbls. This is a daily average for the six days since it was drilled in of 251 bbls. For about two days it did approximately 80 bbls., then went up to around 475 bbls., and since that time has shown a decline to around 200 to 250 bbls. Equipped with additional tankage on the Stelzreide lease, the Sun Oil Co. is preparing to expand its storage facilities on the Pere Marquette siding north of Weiss Street where its gathering system discharges into a storage tank for transfer into tank cars. The company now has a 2,500-bbl. tank there and it was announced that it has placed orders for two more 2,000-bbl. tanks to be set up at the loading rack.

It is not thought that the drilling Friday penetrated much farther into the sand, and company officials indicated that there probably will be no more drilling done for a while unless the production dwindles rapidly.

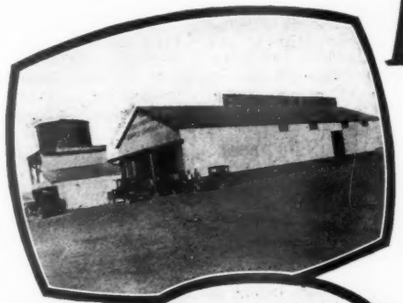
State Geologist's View

One of the most interested in the crowd that continued to visit the well was Wayland Osgood, geologist of the State Geological Survey in charge of its oil investigations, who came to Saginaw to inspect the well. While conservative in his statements regarding it, Mr. Osgood declared to the News-Courier that on its face the well seems an excellent sign of possible big production in the Saginaw Field. "Time will be required to show just what this well will do and what its discovery means. But so far it looks excellent and its falling off in production is no more than might naturally be expected. It is reasonable to suppose that this well is not the only one that may be brought in here and it is entirely possible that it may be the forerunner of a far better field than that in the Berea. Of course, it is a new thing here, for Saginaw oil men have had little experience with the Saginaw sand and there is no way of knowing what to expect. For instance, it may be spotty and wells may vary widely in their production. The Sun Oil Co.'s second well on the Rabe lease will be extremely interesting and its showing will help to tell something definite about the prospects for Saginaw sand production."

The Saginaw sand, which, by the way, is a lime formation rather than a sand.

(Continued on Page 108)

Announcing Our New Beaumont Store



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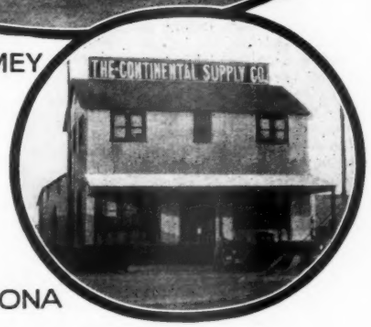

NOCONA

We are pleased to announce the opening of our new store, at Beaumont, Texas. Oil operators in the Beaumont district will find our stocks of pipe and supplies at this point complete, and will find our men ready to render the same kind of intelligent personal service that is characteristic of Continental's entire distributing organization.

The small photographs show two other Continental stores recently opened in Texas.

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CONTINENTAL

Natural Gas Developments

Program Arranged For Dallas Meeting Southwest Gas Men

The program of the meeting of the Southwest Division of the Natural Gas Association of America to be held in Dallas, Tex., April 12 and 13, is practically complete, according to George McQuaid, secretary. It contains papers of interest to gas and oil men in the Southwest and a number of questions for discussion that promise to elicit considerable constructive comment.

Attendance is expected to be heavy at this meeting. Major companies are sending men to participate in the meeting and many individual members are preparing to be present.

The program, subject to slight changes, is as follows:

Address of Welcome—J. W. Everman, supervisor of utilities, city of Dallas.

Response to Address of Welcome—E. R. Brown, president, Magnolia Petroleum Co.

Remarks by chairman—N. C. McGowen, The Palmer Corp., Shreveport, La.

Paper: "The Trend of Gas Measurement," E. R. Clark, Oklahoma Natural Gas Corp., Tulsa, Okla.

Paper: "Building the House Heating Load," Floyd M. Rosenkrans, Gas Service Co., Kansas City, Mo.

Paper: "Pipe Line Flow Formula," E. L. Rawlins, United States Bureau of Mines.

Paper: "Cleaning Gas in Transportation Lines," Walter Reid, consulting engineer, Dallas.

Question discussions:

"Co-Operation with Regulatory Bodies," led by B. P. Stockwell, Oklahoma Corporation Commission.

"The Merchandising of Gas," led by Chester May, Lone Star Gas Co., Dallas.

"Pipe Line Corrosion," led by John Crout, Gas Service Co., Kansas City, Mo.

"Methods of Storing Natural Gasoline," leader of discussion to be supplied.

Report of chairmen of standing committees and discussion of activities of committees, led by the several chairmen.

KLEBERG COUNTY GAS IS TO BE DEVELOPED

By B. D. Stevenson

SAN ANTONIO, Tex., Apr. 2.—Houston Oil Co., for a consideration not stated, as reported briefly in The Oil and Gas Journal last week, has purchased the 7 miles of gas line from the Kingsville Field in Kleberg County to the city of Kingsville along with the distributing system in Kingsville and will make about $100,000 worth of improvements and extensions. The purchase was from the Kleberg County Oil & Gas Co. and it also took over about 1,400 acres of leases in the field from the same company and will develop these on a 50-50 basis. The city commissioners of Kingsville have amended the charter of the Kleberg County Oil & Gas Co. to be effective in 30 days to meet certain needs. Mr. Tucker, engineer for the Houston Oil Co., is in Kingsville making an inventory and taking preliminary steps to constructing a complete 6-inch lap welded gas line around the city and 4-inch loop laterals through the alleys. As soon as titles to leases have been approved the Houston Oil Co. will start drilling in the field.

A committee consisting of A. L. Kleberg, H. C. Dennett, C. M. Allen and J. C. Nolan representing the Kleberg County Oil & Gas Co., went to Houston and closed the deal, for the sale of the property to the Houston Oil Co. The original discovery well of the Kingsville Field, a gas well, was drilled by the Kleberg County Oil & Gas Co. and the lease including this well now goes to the Houston Oil Co. for development.

This will bring the first large company into the Kingsville Field other than the Humble Oil & Refining Co. Houston Oil will drill for gas and this will be the first drilling done primarily for gas. Gas sands in other wells have been mudded off in many instances without testing. Houston Oil Co. expects to develop a supply of gas much greater than will be needed in Kingsville and will then run a line from this field north a distance of about 50 miles to connect with its line from the Mirando Field to Houston.

The city of Kingsville recently granted a 30-year franchise to Lowden C. Doney, who formerly was chief engineer for the Houston Gulf Gas Co., but is now operating independently. Mr. Doney proposes to build a gas line and distributing system in Kingsville and bring gas from the White Point Field, in San Patricio and Nueces Counties, 50 miles north.

GAS COMPANY MERGER IN SOUTHEAST KANSAS

TOPEKA, Kans., Apr. 2.—Plans for a consolidation of 13 Doherty gas distributing companies operating in southeastern Kansas have been laid before the Kansas public service commission.

The Union Public Service Co., owner of the capital stock of the companies, has made application to the commission for permission to acquire the physical assets, franchises and assets of the companies which it now controls as a "holding company." M. J. Healy, attorney for the public service commission, said he had been informed the consolidation was sought as a means of decreasing bookkeeping expenses.

The companies included in the proposed consolidation are: The Anderson County Light & Heat Co., the Baldwin Gas Co., the Edgerton Gas Co., the Gardner Gas Co., the Johnson County Gas Co., the Kansas Farmers Gas Co., the Miami County Gas Co., the Ottawa Gas & Electric Co., the Parsons Gas Co., the Richmond & Princeton Gas Co., the Tri-City Gas Co., the Weir Gas Co. and the Wellsville Gas Co.

PIPE LINE PERMITS GRANTED IN ARKANSAS

EL DORADO, Ark., Apr. 2.—Permits for two gas pipe lines were granted by the Arkansas railroad commission at a hearing in Little Rock, one to the Public Utilities Corp. of Arkansas, of El Dorado, and the other to Morgan Utilities, Inc., also of El Dorado. The latter included reservations for future applications for permits for extensions of its proposed line.

The Public Utilities Corp.'s permit is for construction of 75 miles of 10-inch line from the new Johnson County, Arkansas, gas field, near Clarksville, to Conway, via Russellville, Atkins, Morrillton and intervening towns. Preliminary surveys for this line have been completed and stakes are being driven for construction of the first section. Tong gangs and ditching crews are expected to be on the job for the entire route before May 1.

The Morgan Utilities, Inc., project contemplates construction of a 12-inch line extending 150 miles from the Monroe gas field in Ouachita Parish via LaPile, El Dorado and Camden to Bearden, Thornton and Fordyce with ultimate extension to Pine Bluff and a lateral to Warren.

According to S. R. Morgan, construction of the line will entail expenditure of over $1,000,000, and will begin within 60 or 90 days. The company already owns 1,500 acres of leases in the Morehouse Parish section of the Monroe gas field. The property is in a solid beginning about 2 miles west of Bastrop and the proposed line will extend from this block northwest, entering Arkansas at LaPile, thence to El Dorado, Camden, where it will turn northeast to Thornton, Bearden and Fordyce.

It is the company's plan, Mr. Morgan said, to supply Thornton, Bearden and other small communities along the route, direct and to wholesale gas to companies already having franchises in Fordyce and Pine Bluff, later building a spur from the main line to Warren and intervening points.

UNION NATURAL BUYS DISTRIBUTING SYSTEM

CHATHAM, Ontario, Apr. 2.—Announcement has been made of the purchase by the Union Natural Gas Co. of Canada of the plant, franchises and interests of the Wallaceburg Gas Co. The Wallaceburg company was the second organization to distribute natural gas from the Tilbury Field, being organized by Wallaceburg men in 1908; and all the stock practically is held in the town. The directors were W. H. Mitchell, A. St. C. Gordon and C. S. Stonehouse, with James L. Eberts as manager. The company was originally supplied from the Tilbury Field by the Northern Pipe Line Co., which was taken over some years ago by the Union Natural Gas Co. The purchase of the Wallaceburg distributing system gives the Union direct ownership of all the distributing systems supplied by its pipe lines except that of the Chatham Gas Co. in Chatham, the Windsor, Sarnia and Petrolia systems all having been taken over by the Union company.

PANHANDLE CARBON PLANT

AMARILLO, Tex., Apr. 2.—Dixon Creek Oil Co. recently petitioned the Texas Railroad Commission for a permit to build a carbon black plant in the Panhandle. The commission meets April 14 at Austin, Tex.

The Dixon Creek Co. asks a permit to burn carbon black from waste residue gas from casinghead gasoline plants in Hutchinson County, the plant to be located conveniently to wells in Sections 5, 6, 11, 12 and 14 of Block Y in M. & C. Survey. The company plans a five-unit plant, allowing it to burn 5,000,000 feet, but only two units, of 10 sheds to each unit, will be built at first.

NEW CARBON UNITS

SHREVEPORT, La., Apr. 2.—Two additional units are being added to the Owl Oil Co.'s carbon black plant at Greenwood in the Waskom gas field. The carbon plant is being operated in conjunction with a natural gasoline plant. Gas is being pulled from the Owl company's Waskom leases. It is the only carbon plant in operation in Louisiana outside of the Monroe gas field.

DRILLING IN PANHANDLE

AMARILLO, Tex., Apr. 2.—In anticipation of an industrial franchise to supply Kansas City with natural gas, The Texas Company has launched a program of drilling only gas wells in Gray and Carson Counties of the Panhandle Field. This week it has completed six gassers for 101,000,000 feet. A dozen other wells are drilling. The Texas Company has nearly 100,000 acres of leases in gas territory.

SURVEY OF CONDITIONS IN MONROE GAS FIELD

SHREVEPORT, La., Apr. 2.—A survey of the Monroe gas field, the largest gas field in the world, reveals the field to be in good physical condition, with operators co-operating to conserve the field, according to William F. Chisholm, director of the minerals division of the Louisiana Conservation Commission. The survey was conducted under the supervision of Capt. R. P. Webb of the Monroe, La., office of the conservation commission.

The survey shows the open flow capacity of the field to be 3,485,280,692 feet of gas from the 461 wells capable of producing. There are 366 wells in production and 95 shut in. In addition, the report shows that 23 wells have been junked in the gas sand; 5 which blew out in the shallow water sand and were abandoned; 8 dry holes in the producing horizon, 3 cratered wells and 4 deep failures. This brings the total number of wells drilled in the productive limits of the field to 504.

Average production of each well capable of producing is 7,560,262 feet of gas. The average volume of gas actually produced daily during the past fiscal year was 370,705,000 feet. Of that volume, 244,346,000 feet of gas was burned in carbon black plants scattered over the field, and 126,599,000 feet of gas is consumed daily for domestic and industrial purposes. Approximately 75 per cent of the world's supply of carbon black is made in the Monroe Field. The domestic and industrial gas is piped from the field by two large gas lines, one of which runs to Baton Rouge, La., and is expected to be extended to New Orleans, La.

It is interesting to note that carbon black manufacturers are not using their full quota of gas for the manufacture of carbon black. Recently, Dr. V. K. Irion, head of the Louisiana Conservation Commission, enforced the regulation cutting down the quota of gas to be used for manufacture of carbon black to 275,000,000 feet daily. At present the carbon black makers are using 244,346,000 feet of gas daily.

The average consumption per day of the total open flow capacity of the field is 10.64 per cent. Of that amount, 65.91 per cent of the daily average consumption is used in the manufacture of carbon black, and 34.9 per cent of the daily average consumption is used for domestic and industrial purposes.

While the productive life of the field will exceed a score of years at the present rate of consumption, in the opinion of many who have studied the area, conservation officials are constantly studying the field with a view of prolonging its life. It is estimated by an old operator in the field that 800 wells will have been drilled in Monroe before it is "drilled up."

Recently, Mr. Chisholm inaugurated a service to the operators of the Monroe Field that is expected to aid materially in helping to conserve the field. It is a map dividing the field into zones according to their relative rock pressures. This map is being completed by N. E. Dufilho, department engineer, and will be for the service of operators. Following the study of rock pressures in the field, more time is to be devoted to the study of water encroachment there.

There is little change in the rock pressures of the old wells in the field when compared to the last report of the field. Water encroachment is not at present causing a serious condition to exist. The west side of the field has the highest rock pressure. It is known as the Spencer zone, and the average rock pressure of the wells there is 1,013.5 pounds per well. The Swartz area in the southeast part of the field has the lowest rock pressure, it being 247.9 pounds per well.

Try Williams' "Vulcan" No. 15½ on 16 inch pipe!

Swing the chain of the GENUINE "Vulcan" Tongs No. 15½ around a 16-inch pipe. You can feel its saw-tempered teeth grip instantly, yet it releases readily.

"Vulcan" No. 15½ is made for use on large pipe. Its 68-inch proof-tested and CERTIFIED chain will withstand a strain of 30,000 lbs. There's strength that's hard to equal.

Drop-forged from carefully selected steel, here's an efficient and dependable tool that will be on the job year after year.

Nine sizes for ⅛ to 18" pipe. If you work on pipe up to 16" your equipment should include "Vulcan" No. 15½. *Literature?*

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"VULCAN" CHAIN PIPE TONGS

MEN KNOWN IN OILDOM

John McKeon

John McKeon, vice president of the Richfield Oil Company and in direct charge of production in his capacity as production manager, began work in the fields of Kern County, California, in 1909. He was born in Rock County, Minnesota, in 1881, and received his early education in that section. Until 1918, Mr. McKeon was president and general manager of the W. D. Head Drilling Company and upon the acquisition of this concern by the Union Oil Company of Delaware he organized the McKeon Drilling Company which was regarded as one of the most efficient contracting companies in California.

With the advent of the major fields in southern California, the McKeon Drilling Company expanded its scope of activities considerably but the crash resulting from the overnight drop in production at Santa Fe Springs left the company nearly $1,000,000 in debt. Most operators would have gone through bankruptcy, but not Mr. McKeon. While things looked rather dark at times he kept plugging away and paid off every dollar of indebtedness plus the accumulated interest.

The McKeon Oil Company was organized in October, 1925 and, following the development of substantial production, this concern, together with the McKeon Drilling Company was acquired by the Richfield Oil Company during the latter part of 1926. Mr. McKeon, in addition to becoming a large stockholder in the Richfield Oil Company, became vice president of that concern and is in complete charge of all drilling and production activities.

PERSONAL PARAGRAPHS

E. W. Clark, of Los Angeles, president of the American Petroleum Institute, has been East on business

* * *

D. S. Brooks, president of the Root Refineries, Inc., of Shreveport, La., made a business trip to Indianapolis, Ind.

* * *

Bob Tannsel, Tulsa, Okla., marketer of petroleum products, was a Shreveport, La., visitor, calling on various refiners.

* * *

D. J. Mitchell, of the Fuel Oil Corporation, Detroit, Mich., was in Shreveport, La., recently visiting refiners in this territory.

* * *

G. R. Stevens, of Shreveport, La., representative of the Simms Oil Company, in north Louisiana oil fields, was in Dallas, Tex., on business.

H. A. Gump, of the Oklahoma Contracting Company of Dallas, Tex., has returned to his office after a two weeks' visit in Tulsa, Okla.

* * *

Thomas A. Northrup, president Northrup Equipment Company, Parkersburg, W. Va., is calling on the trade in the Mid-Continent fields.

* * *

L. C. Stevenson, president of the Sunburst Refining Company, Great Falls, Mont., has returned from a short business trip to the Coast.

* * *

W. H. Elliott, head of the Maloney Sales Corporation, was in the Panhandle fields a few days last week and has returned to Tulsa, Okla.

* * *

Carl C. Adams, consulting geologist, Fort Worth, Tex., has returned from a trip to the wilds of southwest Texas near the Mexican border.

* * *

W. R. Daugherty, of Oil City, Pa., auditor for the Southern Group of Pipe Lines, spent several days at the Pittsburgh, Pa., office recently.

* * *

J. D. Lemex, director of specialties for the Oil Well Supply Company, and of Tulsa, Okla., was a recent business visitor in Fort Worth, Tex.

* * *

R. M. Franks of Tulsa, Okla., associate of Ramsey Brothers, oil operators of Oklahoma City, has been in Shreveport, La., on business the past week.

* * *

R. B. Kahle, of Boston, Mass., president of the Louisiana Oil Refining Company, spent a week recently at offices of the company in Shreveport, La.

* * *

George Williams, general sales manager of the Johnson Oil Refining Company of Chicago, called on Arkansas and North Louisiana refiners recently.

* * *

A. C. Trowbridge, professor of geology of the University of Iowa, Iowa City, was a visitor in Amarillo and the Texas Panhandle fields last week.

* * *

Vern Luhrson, superintendent of Sunburst Oil & Refining operations, is ill at Columbus Hospital, Great Falls, Mont., suffering from abscessed tonsils.

* * *

Dr. G. H. Hansen, Fort Worth, Tex., was recently made a member of the geological staff of The Texas Company, in the North Central Texas Division.

* * *

T. Otis Winn, chief scout of The Texas Company in the Arkansas-North Louisiana area, was kept from his office several days due to a minor operation.

* * *

G. E. Schoup, head of the pumping equipment department of the Oil Well Supply Company, Pittsburgh, Pa., is making a tour of the Mid-Continent fields.

* * *

Don S. Bowers, general manager for W. C. Norris, manufacturer, of Tulsa, Okla., has been calling on the trade in north Texas and Gulf Coast territory.

* * *

G. Jeffreys, geologist, of San Antonio, Tex., who has been absent at his office in New York and in west Texas for many months, has returned to San Antonio.

* * *

C. O. Burge has been appointed by The Master Builders Company, of Cleveland, Ohio, as salesman for the State of Oklahoma, with headquarters in Oklahoma City.

* * *

Shep Miers, representing the Dunn Manufacturing Company, of Oxnard, Calif., in the Gulf Coast region, is making a tour of the south and north Louisiana fields.

* * *

Howard Coleman, of the Simms Petroleum Company, Dallas, Tex., is looking over the Coastal region on a special business mission. He is a former resident of Bradford, Pa.

* * *

Edmund Burke, manager of the oil department of the Crane Company, Chicago, and Charles Olsen, production engineer, have been in Houston, Tex., in conference with David Schfield, of the Houston branch of Crane Company.

W. R. Tucker, of Dallas, Tex., district representative of the Stanley Belting Corporation of Chicago, visited the trade in the Arkansas-North Louisiana oil fields the past week.

* * *

C. G. Staley, of Socorro, N. Mex., and formerly a staff member of the New Mexico State Geological Department, has been elevated to chief geologist. He succeeds E. H. Wells, resigned.

* * *

B. W. Messer, general manager of the Utah Oil & Refining Company, is looking over the company's affairs in Wyoming on a short visit from his headquarters in Salt Lake City, Utah.

* * *

D. J. Moran, vice president of The Texas Company, with headquarters in New York, was in Fort Worth, Tex., last week. Mr. Moran was making a tour of the Mid-Continent fields.

* * *

C. R. McCollom, chief geologist of the Union Oil Company of California, has returned from the recent meeting of the American Association of Petroleum Geologists held at Tulsa, Okla.

* * *

J. H. Reideman, of Tulsa, Okla., general superintendent of the natural gasoline department of the Gilliland Oil Company, visited in Shreveport, La., and oil fields of that district the past week.

* * *

T. A. Morgan, formerly in charge of crude oil purchases and pipe lines for the White Eagle Oil & Refining Company, Fort Worth, Tex., and now an independent operator, was in San Angelo, Tex., last week.

* * *

Charles L. Newcomb, of Holyoke, Mass., vice president of the American Society of Mechanical Engineers, and Calvin W. Rice, of New York, secretary of the association, will attend the meeting of the Mid-Continent section, in Tulsa, April 7.

* * *

H. W. Karnes, president of the Ada Belle Oil Company, operating in the Batson Pool, was a recent visitor in Houston, Tex. Mr. Karnes is a native of Rockland, Venango County, Pennsylvania, and is one of the successful independent operators in the Gulf Coast region.

* * *

R. V. Hanrahan, president of the Humble Pipe Line Company; James Anderson, vice president of the Humble Oil & Refining Company; A. M. Bowman, purchasing agent and J. C. McCue, manager of production for The Texas Company, attended the C. K. Clark funeral at Shreveport, La., from Houston, Tex.

* * *

James A. Carrol, Jr., for several years general auditor of the Midwest Refining Company with headquarters at Denver, Colo., has been made general auditor of the Standard Oil Company of Indiana, with headquarters in Chicago. Mr. Carroll is a son of James A. Carroll, commissioner of the Prairie Oil & Gas Company, Independence, Kans. His experience in the oil business includes employment with the Texas Pacific Coal & Oil Company, the Prairie Oil & Gas Company, and the Dixie Oil Company. He is a certified public accountant. His education was secured in the Mexico, Mo., Military Institute, and in commercial schools.

* * *

Ralph W. Carroll, who, in the eighties, was one of the leading oil well equipment dealers in the Pennsylvania fields, writes from the Hotel Russell in London, England, where he has been a guest through the winter, that England expects 400,000 American visitors this year. Mr. Carroll goes on to say that he hopes to see some oil men among the 400,000 and that he is at the service of any American oil man who visits the world's biggest city. Mr. Carroll recalls that in former years he entertained the late William L. Curtis, the European representative of the Pure Oil Company, and the famous "Mystery Mike" Murphy, one of the old guard of high-powered Pennsylvania oil men, with a dinner at the Cheshire Cheese, made famous by Dr. Samuel Johnson. Mr. Carroll has many friends who are high in English and Irish political life. T. P. O'Connor and William O'Malley, P. M., from Connemara in the old days when Irish members kept things stirred up in the British House of Commons, are among his intimate friends of many years standing.

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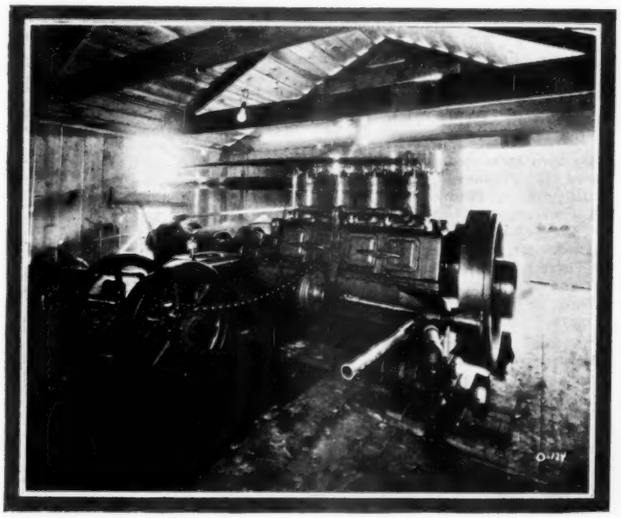

Above is the Clark Engine with which George McQueen is drilling the well at left, near McCamey, Texas. McQueen has four Clark Engines drilling this district.

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rilling Engine

EQUIPMENT AND SUPPLIES

PITTSBURGH EQUITABLE METER COMPANY NOW

The Equitable Meter & Manufacturing Co. has recently changed its name to the Pittsburgh Equitable Meter Co. and has also purchased the assets of the Pittsburgh Meter Co. The two plants will be operated and all products manufactured by both companies will be continued.

Both the Pittsburgh Meter Co. and the Equitable Meter Co. have been in existence for more than 30 years and during that time, both have been engaged in the manufacture of gas meters. The Equitable Meter Co. had also become one of the largest manufacturers of gas regulators, while the Pittsburgh Meter Co. had become one of the largest manufacturers of water meters.

G. V. LALLY APPOINTED GENERAL SALES MANAGER

C. V. Lally has been appointed general manager of sales of Pittsburgh Steel Products Co. Richard R. Harris, who has been general manager of sales of Pittsburgh Steel Co. and subsidiary companies, has resigned. Mr. Lally has been manager of the Detroit office of the National Tube Co. and has been associated with that company in its sales organization for 17 years.

The Pittsburgh Steel Products Co. is a large manufacturer of seamless steel tubes including boiler tubes, mechanical tubing and oil country tubular products. In 1925 its capital stock was acquired by Pittsburgh Steel Co. and it is now operated as a subsidiary of that company, forming a larger combined organization which manufactures its own steel and controls its own sources of raw materials.

SULLIVAN MACH. PERSONNEL

O. J. Neslage of the St. Louis office sales staff, Sullivan Machinery Co., for several years past located in the Joplin, Mo., lead and zinc district, has been appointed local manager at Mexico City, Edificio Oliver No. 3. A. W. Oakes, for several years past manager at Mexico City, has been appointed to a post in the United States. C. W. Miller has been appointed special representative of the Sullivan Machinery Co. in Cuba and will co-operate with the company's general agents for Cuba, Messrs. The Purdy & Henderson Trading Co., Habana 55, esquina a Empedrado, Havana, Cuba.

Matt Brodie, manager for Asia of the Sullivan Machinery Co., sailed last week from San Francisco for Tokyo, following a three months' furlough in this country.

IMPROVED ARCH CONSTRUCTION

A flexible arch tile enabling, it is said, more economical and much easier construction and maintenance, created considerable comment upon being displayed at the Chicago power show. The new patented Reintjes flexible arch tile, the manufacturers say, forms its own arch, requiring no temporary arch centers or skewbacks; no iron or steel is required either. Only two shapes of tile are needed regardless of thickness of walls or the varying width of span, or whether the door jambs are square or beveled. This eliminates the need for several styles. Another feature of the Reintjes flexible arch tile is that no leveling is required as is necessary with sprung aches. The units remain level with adjacent brickwork without any leveling medium. Each step up is equal to a brick course. The arch is built up in sections the width of one brick course.

TRADE LITERATURE RECEIVED

From the American Rolling Mill Co., Middletown, Ohio, a booklet entitled, "Twenty-six Years of Progress." This is a sketch written by the president of the company, George M. Verity, which traces the growth of the company in chronological order and particularly mentions the developments of the new Ashland plant, which has caused great changes in sheet metal manufacturing.

From the Chicago Bridge & Iron Works of Chicago, Ill., a catalog entitled, "Stopping Evaporation." This describes the Wiggins roof, a device which rides directly upon the oil in a tank and prevents oil from passing into the air in the form of vapors.

From the Barber-Greene Co., Aurora, Ill., a catalog entitled, "Ditching Snap-Shots and Records." This catalog enumerates many difficult ditching jobs which have been performed by the Barber-Greene equipment.

From Aluminum Co. of America, a booklet entitled "Aluminum Paint," by Junius D. Edwards and Robert L. Wray. This booklet describes the physical properties of aluminum paint and its uses in modern industry.

From Oakite Products Co. the current number of Oakite News Service.

From Armstrong Brothers Tool Co., Chicago, Ill., a pipe tool catalog describing that company's line of stocks and dies and miscellaneous pipe tools.

From General Electric Co., Schenectady, N. Y., a catalog entitled "Automatic Arc Welding." Among other interesting topics this booklet shows a picture of what is claimed to be the first all-electrically arc welded water pipe line in the world at Gordon Valley, Calif.

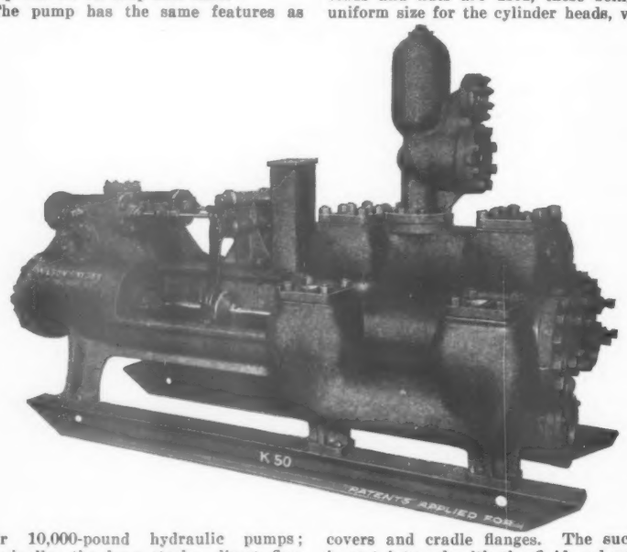
From Monarch Tractors Corp., Springfield, Ill., a folder describing the Model H Monarch tractor, a new size designed and built for industrial use.

From Riley Power Equipment Co., Milwaukee, Wis., a folder giving details of the Eckenroth automatic reseating blow-off valve made by the Eckenroth Valve & Mfg. Co., Philadelphia, Pa. This is a blow-off valve for boiler service.

SLUSH PUMP FOR DEEP ROTARY DRILLING

Wilson-Snyder, Pittsburgh, Pa., builders of high-pressure pumps for over half a century, have developed a slush pump for deep rotary drilling. They received many inquiries indicating the demand for a pump of the Wilson-Snyder class, which led to thorough investigation, resulting in the installation of Wilson-Snyder slush pump No. 18 on deep-hole tests.

The pump has the same features as their 10,000-pound hydraulic pumps; principally, the long stroke, direct flow and balanced steam piston valves; No. 18 has 14-inch steam cylinders, 7-inch pistons by 18-inch stroke. With this long stroke the campany says the reversals of the pump are greatly reduced, and with the direct flow design full volume is obtained at all times. The piston steam valves are balanced, and operate without drag at all steam pressures. Minimum wear, smooth operation and maximum volume is practical with heavier slush against high pressures. Rigidity, accessibility and other conveniences are included in the design.



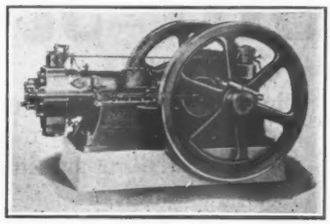
The pump consists of three main castings: the fluid end, the steam end with cradle, and the air chamber with strainer chamber. The rigidity, it is stated, should be especially noted. There is only one connection between the fluid and steam ends. The fluid end is supported by 4 feet and the steam end by 2, making a total of 6, all bolted to "H" section steel beam skids, the latter being standard equipment. With this construction central strain is reported eliminated and definite alignment is permanent. Fewer studs and nuts are used, these being of uniform size for the cylinder heads, valve covers and cradle flanges. The suction is cast integral with the fluid end which allows only one joint between suction valves and suction line. The air chamber and discharge connection are out of the way, preventing interference from this source. The end flanges are in the same plane. The cradle end of liners is easily reached through the suction valve chamber. On the cradle between the rocker shaft stand and fluid end an oil tank is furnished of ample capacity, and the lubricating of the moving parts is automatic.

The steam inlet is located on top and connection can be made from any direction. There is a steam exhaust connection on each side of the pump and whichever is convenient can be used. Most of these points can be observed in the illustration.

ADDS 30 HORSEPOWER TO EMSCO ENGINE LINE

A new oil field gas engine of 30 horse power, designed and built similar to its 40-horse power oil field engine, has been developed by the Emsco Derrick & Equipment Co., Los Angeles, Calif., to meet the requirements for a smaller unit in oil field pumping service.

"Design and construction," the company states, "follow conventional practice with



refinements of detail found desirable in a new model of this type and capacity. Detail has been simplified to a great degree to perform its proper function with the least number of working parts. Particularly noticeable is this in the valve operating mechanism. To insure accurate positioning and to maintain accurate timing between the exhaust and inlet valves, the push rods are operated by cams made from a solid piece of steel, hardened and ground.

"Elimination of detail is apparent in the valve cage assembly, and the facility of renewing the assembly when necessary, and noteworthy is the water-jacketed exhaust valve which receives cool intake water from the cylinder head. This provides cool water at the hottest spot in the engine. To insure free and unrestricted water circulation there are no large obstructions in the Emsco cylinder water jacket.

"Cylinder and piston design provide perfect compression and insures long life. The connecting rod is of forged steel. The wrist pin is hardened and ground and operates in a bronze box with positive oiling from the force feed lubricator, through the cylinder, direct to the wrist pin. The crank pin box is of bronze and lined with nickel babbitt. Extreme fuel economy is attained by a centrifugal type governor which runs in a bath of oil, and is extremely powerful in its action. It regulates the speed of the engine in very close limits which is reflected in the low and uniform fuel consumption."

There are many other improvements on the new Emsco 30-horse power engine, which are fully set forth in the Emsco catalog. Readers may get complete data by writing to the manufacturers.

NEW RETURN BEND

E. K. Pierce has been appointed manager of the fitting division of the Ohio Steel Foundry Co. at Springfield, Ohio, which specializes in high pressure-high temperature steel castings. Mr. Pierce has designed and perfected a new type of return bend and closure for pipe stills and cracking units called the "Ohiolock" return bend. He has been connected with the refinery industry for a number of years and was in the refinery division of the M. W. Kellogg Co. prior to his connection with the Ohio Steel Foundry Co.

HOUSTON BRANCH OFFICE

Hill, Hubbell & Co. of San Francisco, Calif., makers of paints, announce the opening of a branch office at Houston, Tex., located at 1006 Washington Avenue, where a complete stock will be carried.

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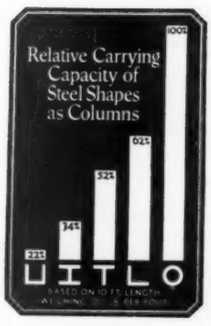
Lowest Upkeep Cost!

MOORE upkeep is lowest because of several definite features. The greater strength of tubular leg sections and girts means lighter weight. The consequent saving in transportation and handling charges is considerable. The Moore patented clamp and track bolt assure easier and quicker erection, and with common labor instead of skilled workmen. The use of reinforcing legs converts a pumping derrick into a drilling derrick, or vice versa. These supplementary legs are used over and over again. A Moore Tubular Steel Derrick is easily dismantled and re-erected. Five to ten years' use, in different locations, often results in savings equal to its entire first cost.



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Drilling and Pumping Rig Equipment

Attention Is Focused on the Kind of Equipment Used When a Well Is Standardized. Conclusions Are Stated

By Glenver McConnell*
Mechanical Engineer, Roxana Petroleum Corp.

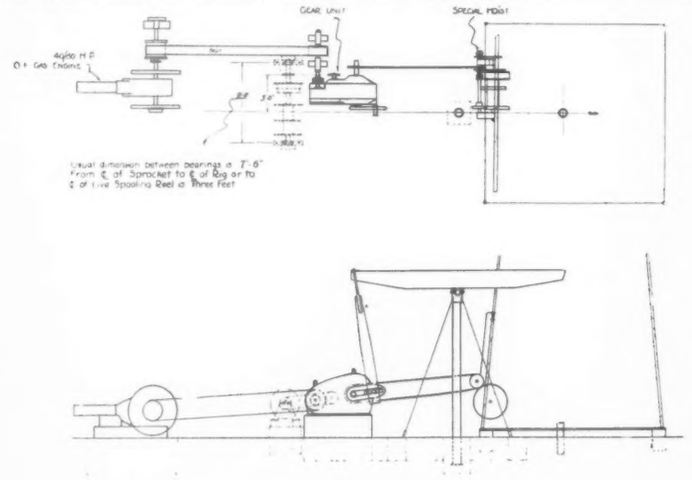
Standard drilling and pumping rig equipment has always been one and the same thing. Rotary drilling requires an equipment entirely different from that used for cable tools on standard rigs. The central thought of this paper is to focus our attention on equipment used when a well is standardized. All standard tool drilling and all heavy duty pumping equipment consists primarily of a walking beam operated by a crank shaft and pitman with means provided for operating certain hoisting apparatuses. Any suitable prime mover may be used. The idea is basically very old and will be difficult of replacement.

The oil field application of this principle necessitated the early development of a specially built, quickly reversible steam engine, which could be belted directly to a bandwheel on the walking beam crank shaft. Many years later special electric induction motors, either for single or double speed and horsepower range were developed ostensibly to replace the steam engine. Oil field gas engines were likewise introduced for the same purpose, but they are substituted chiefly for standard pumping duty. Very recently we find the industry adopting to some extent the use of high speed multiple cylinder gasoline motors using natural gas as a substitute cheap fuel. Except for taking care of speed reduction and providing means of reversing pulley rotation, these prime movers are generally belted to the bandwheel in much the same manner as the steam engine. The Diesel engine is now making its appearance equipped to be so applied. These last two types of engines will provide a choice of unit interchangeable in speed characteristics with electric motors, offering suitable power and many economies over steam. Their widespread use will depend very largely upon how successful many prevailing ideas of improvement in power transmission, crank shaft drive, and hoists catch root sufficiently to bring about some permanent changes in layout of rig equipment.

Many think the old idea of a large bandwheel belted directly to power unit is soon to be a thing of the past. It has been retained so long because it possesses simplicity and is universally applicable for use with any engine. Its mechanical efficiency has been generally ignored. Now that there is greater necessity than ever before to reduce power transmission losses and operating expense, new ideas of rig equipment, particularly for pumping, are being developed. We should therefore consider certain fundamentals that will have a bearing upon the trend of improvement over such time-honored equipment. In doing this we should consider a drilling rig that which is required for operating standard cable tools.

Rig Improvement

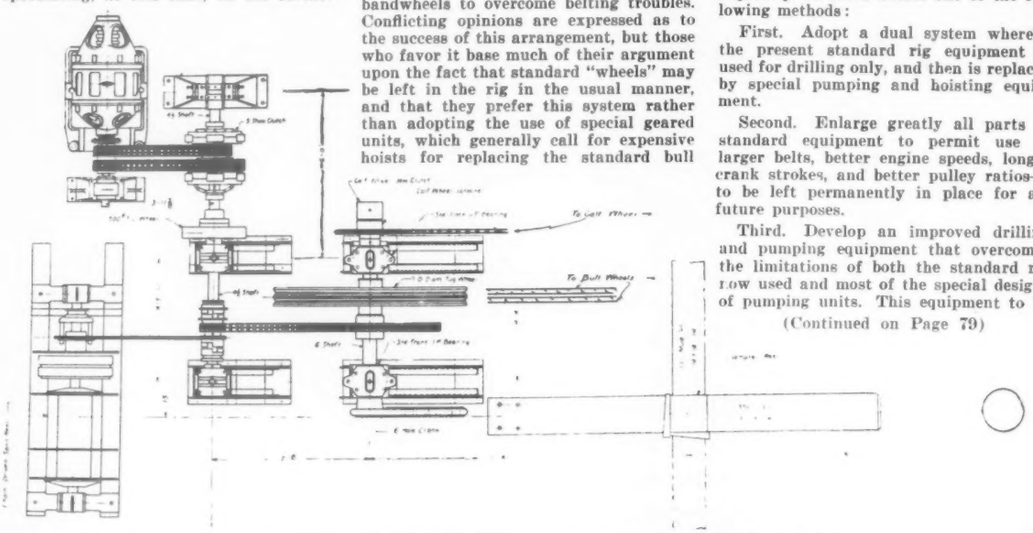
A few years ago pumping troubles became so numerous that something had to be done. Improvement started with many trials of special attachments to provide long strokes for pumps handling large quantities of fluid, designed for use on standard rig equipment. These have failed to accomplish satisfactory results over a long enough period of time. Realizing their high cost it was not long after their first appearance until many specially built pumping units were introduced quite unlike any of the old standard rigs. The worm geared crank shaft, and later, many double reduction geared crank shafts found speedy application in such areas where wells are completed entirely by the rotary method of drilling, and where cleaning out operation is largely confined to infrequent bailing and swabbing. Hydraulic piston operated pumps and special geared pumping jacks were designed. Some of these have met with considerable success; but, in use and development of the geared type crank shaft or pumping unit to overcome many undesirable features of the usual standard rig equipment, particularly for the manifold purpose of handling not only heavier pumping loads, but for drilling


GEAR UNIT
SPECIAL POST
40/60 H.P. Oil or Gas Engine
Usual dimension between bearings is 7'-6"
From ℄ of Sprocket to ℄ of Rig or to ℄ of live Spooling Reel is Three Feet

Layout of reduction geared equipment; driven by a gas engine.

areas where cable tools are used extensively the widespread use of these forms of special equipment has not taken place so rapidly as it did in the all-rotary areas. This is why we find ourselves speculating, at this time, on the further operations as well. Plans for meeting drilling requirements appear to have been of secondary importance to the designers of these specialties.

In certain parts of the country pumping rigs are equipped with chain driven bandwheels to overcome belting troubles. Conflicting opinions are expressed as to the success of this arrangement, but those who favor it base much of their argument upon the fact that standard "wheels" may be left in the rig in the usual manner, and that they prefer this system rather than adopting the use of special geared units, which generally call for expensive hoists for replacing the standard bull wheel and sand reel. It is not very certain that chain driven bandwheels using the oil field type of chains will prove very successful for drilling. Consequently, most of the engineers who have been observing numerous trials with many types of special pumping rig equipment appear to be very cautious in adopting any set policy to apply in all cases when considering the equipment to be used on wells of great depth. Some use "one kind of a unit here, and another there," but generally the old standard rig is the stand-by. Considering the length of time since chains were first substituted for belts in this crude manner, the idea has not been adopted very generally. When drilling speeds are considered the selection of chains will be very important. More will be said on this subject later.



Layout of Universal Drilling Machine, driven by electric motor. Patent applied for.

Facing Three Alternatives

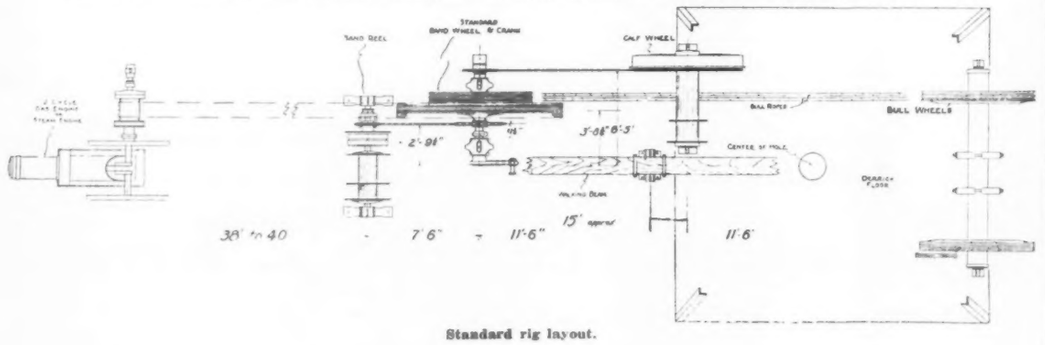
Knowing full well that something is needed to overcome serious belting troubles, engine and clutch expense, electric power costs, shutdowns, and expensive upkeep of all parts of our present equipment, the industry may appear to be misled into believing too greatly in standardization of its equipment. At the same time it is increasing its purchases of equipment that has little chance of becoming standard or of being purchased at lower initial costs. This may be a healthy sign. One thing is very certain—that is, we are facing three alternative methods of procedure to meet cable-tool drilling and heavy pumping requirements. The expense for both operations chargeable to rig equipment becomes important. If we improve the pumping rig, why not the driller? Consequently we must choose one of the following methods:

First. Adopt a dual system whereby the present standard rig equipment is used for drilling only, and then is replaced by special pumping and hoisting equipment.

Second. Enlarge greatly all parts of standard equipment to permit use of larger belts, better engine speeds, longer crank strokes, and better pulley ratios—to be left permanently in place for all future purposes.

Third. Develop an improved drilling and pumping equipment that overcomes the limitations of both the standard rig now used and most of the special designs of pumping units. This equipment to be

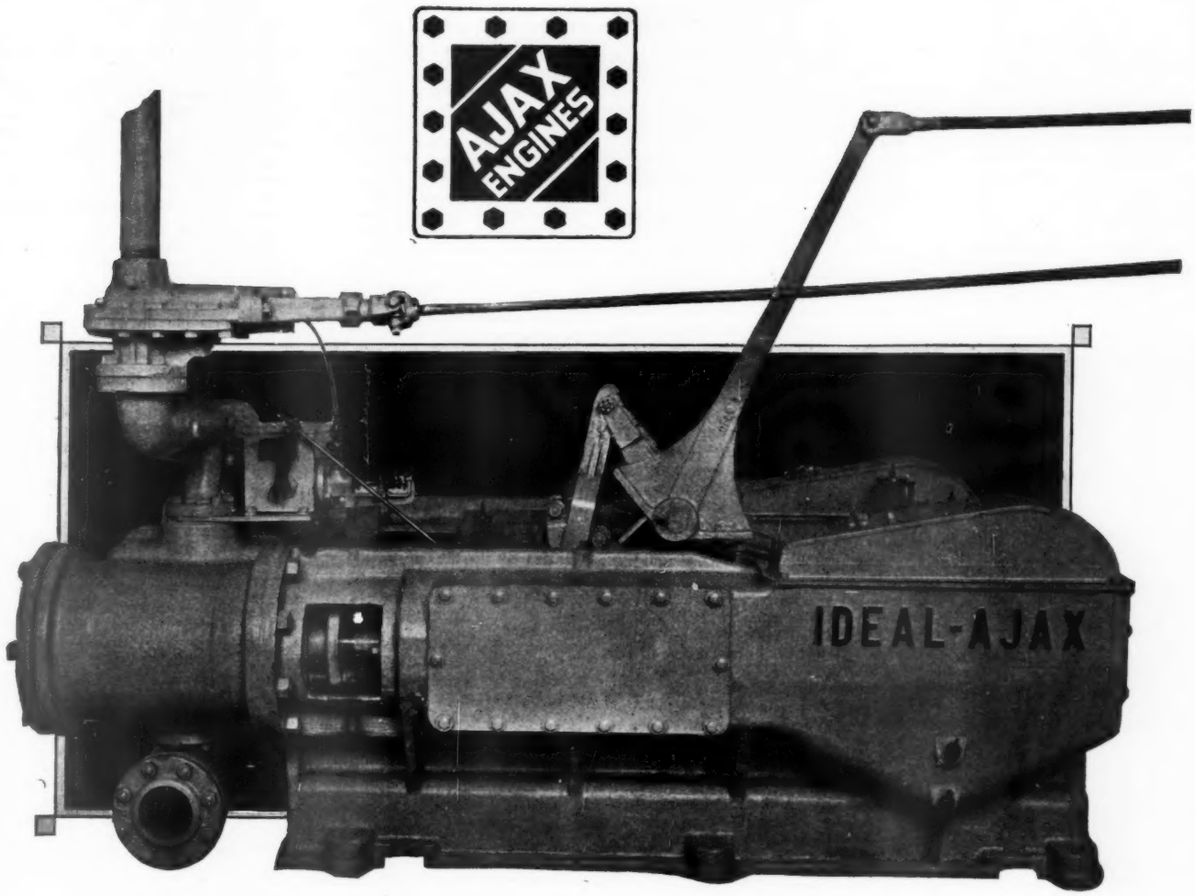
(Continued on Page 79)



Standard rig layout.

* Paper read before meeting of Petroleum Division, American Society of Mechanical Engineers, Kansas City, Mo., April 8.

on AJAX *Engines* - - -



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STEAM ENGINES

Pittsburgh's Place in Petroleum

President of Gulf Refining Co. Tells of Birth and Growth of the Oil Industry

By George S. Davison*
President Gulf Refining Co.

For ages, there have been locked up in the bowels of the earth, great stores of petroleum. It is but 70 years since the first successful demonstration was made that petroleum could be refined into products of commercial value. Within those 70 years there have been extracted from beneath the earth's surface throughout the world, 14,500,000,000 bbls. of crude petroleum, which at the wells had a value of about $30,000,000,000. Of this amount the United States furnished 9,500,000,000 bbls., and American producers operating in foreign countries produced approximately another 1,000,000,000 bbls. These

George S. Davison

facts show that the industry is not only one of the more recent, but also one of the most important.

The first record of the occurrence of petroleum in the United States was made in 1627 and was with respect to an oil spring at Cuba, N. Y., located at the northern edge of the water shed of the Allegheny River. During the following 200 years history mentions discoveries of petroleum at points all the way from the Genesee Valley in New York to the Cumberland Valley in Kentucky, in some instances as an exudation from the ground, and in others as an occurrence in wells drilled for salt. There is some conflict as to the first experience with petroleum in salt wells, but it is an undisputed fact that some of the wells drilled as early as 1810 at Tarentum, in this county, encountered petroleum.

Fossil Oil

A German missionary visiting the North American Indians, wrote in his notes, which were published in Germany in 1789, the following: "One of the favorite medicines used by the Indians is fossil oil (petroleum) exuding from the earth, commonly with water. * * * It is observed both in running and standing water. In the latter the oil swims on the surface and is easily skimmed off, but in rivers it is carried away by the stream. * * * This oil is of brown color and smells something like tar. When the Indians collect it from standing water, they first throw away that which floats on the top, as it smells stronger than that below it. Then they agitate the water violently with a stick; the quantity of oil increases with the motion of the water, and after it has settled again, the oil is skimmed off into kettles and completely separated from the water by boiling. They use it chiefly in external complaints. Some take it inwardly and it has not found to do harm. It will burn in a lamp. The Indians sometimes sell it to the white people at four guineas a quart."

Rev. S. J. M. Eaton, of Franklin, Pa., writing in 1865, with respect to the collection of petroleum back in 1815, says:

"A point was selected where the oil appeared to bubble up most freely, when a pit was excavated to a depth of 2 or 3 feet. Sometimes this pit was rudely walled up, sometimes not. Sometimes it was near the edge of the water on the bank of the stream, sometimes in the bed of the stream itself, advantage being taken of a time of low water. In these pits the oil and water would collect together, until a stratum of the former would form upon the surface of the latter, when a coarse blanket or piece of flannel was thrown in. This blanket soon became saturated with oil, but rejected the water. The blanket was then taken out, wrung into a tub or barrel and the operation repeated."

The elder Professor Silliman of Yale University upon visiting in 1833 the oil spring at Cuba, already mentioned, published an article in his American Journal of Science, in which he states that the Seneca Indians at that time collected the petroleum in the manner just stated, and that the oil was used for sprains and rheumatism. One of the names adopted for petroleum was Seneca Oil.

First Industrial Use

It would appear that the first use of petroleum for industrial purposes occurred in 1845, related in a book published about 1865 by J. H. Bone, under the title of "Petroleum and Petroleum Wells." Mr. Bone said:

"In the year 1845 Mr. Lewis Peterson, Sr., of Tarentum, Allegheny County, Pennsylvania, brought to the Hope Cotton factory at Pittsburgh a sample, in a bottle, of what is now known as petroleum. It came up with the salt water from his salt well at Tarentum, and gave him considerable trouble. Mr. Morrison Foster, then of Pittsburgh, in conjunction with the manager of the spinning department of the mill, Mr. David Anderson, experimented with the oil and soon found that by a certain process it could be combined with sperm oil in such a way as to form a better lubricator for the finest cotton spindles than the best sperm oil, which alone could previously be used for that purpose. The mixture costs about 75 cents per gallon, whilst the sperm oil alone cost $1.30. The saving was so great, in one of the heavy items of expense in a large cotton factory that a contract was entered into with Mr. Peterson by which the latter was to supply 2 bbls. per week, and for 10 years this oil continued to be used at the Hope Cotton factory, unknown to anyone but the proprietors."

It will be noted in this last paragraph, which we have copied exactly as it was written, that Mr. Peterson was a resident of Tarentum. As a matter of fact, Mr. Peterson at the age of 21 came from Philadelphia and settled in Pittsburgh. The history of his life shows that he was a man of unusual energy and ability who had accomplished much. At the time of the fire of 1845 in Pittsburgh, his cotton spinning business was destroyed. He went to a farm at Tarentum, which he owned, and it was upon this property that he discovered oil while drilling for salt.

First Shipment to Pittsburgh

But the fact that Pittsburgh's connection with petroleum antedates Mr. Peterson's use of it is evidenced by the two following extracts taken from the Rev. Mr. Eaton's tales from which we have already quoted:

"The first shipment of petroleum was to Pittsburgh, and in this wise: Mr. Cary, one of the first settlers on Oil Creek, possessing perhaps a little more enterprise than his neighbors, would collect or purchase a cargo of oil and proceed to Pittsburgh and exchange it for commodities needed in his family. This cargo consisted of two 5-gallon kegs that were slung one on each side of a horse, and thus conveyed by land a distance of 70 or 80 miles. * * * Sometimes the market in Pittsburgh became very dull, for a flatboatman would occasionally introduce a barrel or two at once that he had brought down on his raft of lumber or logs. At other times the demand fell off so that the purchase of a barrel was hazardous."

Continuing, Mr. Eaton says:

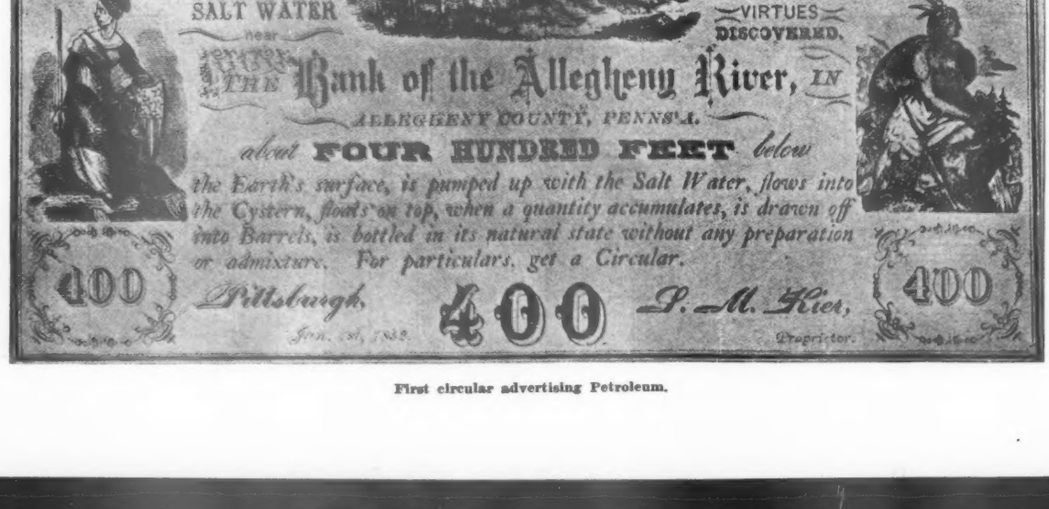
"At a period somewhat later than this, General Samuel Hays, who settled here in 1803, related that at one time he purchased all the oil produced in the country, and that the highest annual yield was 16 bbls. This oil he sold at the time in Pittsburgh at about $1 per gallon."

Suggested for Street Lights

The following letter from a correspondent was published in the Pittsburgh Gazette in 1828:

"I see that the corporation has at last determined to light the city. It is a very sensible determination; for, indeed, few places need it more. I fear that lighting with gas will be found troublesome and expensive, in spite of the vast supply and cheapness of coal; but I will tell you what is the cheapest, best and most economical light you can use; it is what is called the West Seneca oil, which is petroleum. This substance, were there a ready market for it, might be supplied at your very doors to an almost unlimited extent. At present it is almost useless, being used only as an ingredient in what is called 'British oil,' and as a horse medicine (in which, by the way, it is very useful). The price of it is very low, because a few barrels glut the demands of the apothecaries; but if the city would take a large quantity, or if it were brought into use otherwise, I think it could be supplied at 25 cents per gallon. The salt wells may be cleared of what floats by letting a blanket down every quarter of an hour, and this will also apply to the springs where it is discovered. Let anyone who doubts that it is a perfectly good oil for lamps send to the apothecary's for half a pint, and burn it one night in a lamp of any kind, precisely as fish or spermaceti oils are burned, observing only that to avoid smoke, it is necessary that the length of the wick should be diminished. I have tried it, and found it to succeed perfectly, and there is no reason why it should not be clarified as well as any other oil (and then it will burn as free from smoke) by filtering or precipitating the gross particles contained in what is now brought to market. If Seneca oil will supply more gas than animal oils, which I do not doubt, and if it can be procured at 25 cents per gallon, a fair trial of it in

(Continued on Page 178)



First circular advertising Petroleum.

*Address before Pittsburgh Chamber of Commerce, broadcast by radio.

DRILLING AND PUMPING RIG EQUIPMENT

(Continued from Page 72)

capable of speedy conversion from one to the other requirement.

It is highly important to plan carefully because it is not reasonable to suppose that the gas lift method of raising the fluid will obviate the final necessity of pumping. The economic limit of the gas lift cannot be established until more economies are perfected in the mechanical layout of rig equipment.

Petroleum engineers having been credited with the gas lift idea, the opportunity is now presented for mechanical engineers to improve the rig equipment for both drilling and pumping.

Essentials of Standard Rig

To those who predicate all thoughts of a suitable rig equipment for permanent usefulness at wells where heavy loads are encountered, with the idea that drilling motions may at any time be needed for fishing, cleaning out, etc., the following essentials for a standard rig equipment are given:

1. Speeds: Drilling conditions require full-load speed of:

Crank shaft, 70 to 80 r.m.p.; sand reel, 180 to 200 r.p.m.; calf wheel, 35 r.p.m.; bull wheel, 65 to 70 r.p.m.

2. Maximum horsepower demand at maximum speeds may be as high as 150, and at extremely slow speeds, 50 to 100 per cent of the horsepower required at full speed.

3. Rapid reversal of rotation at full load is necessary, and, whenever possible, it is advantageous to have 30 per cent faster reverse speed than forward.

4. All hoists handling large coils of rope should be in alignment with center line of crank and well. Diameter of hoists for large diameter rope should be not less than 18 inches, and larger if possible.

5. For crank shaft power transmission belts, gears or chains may be used, providing the layout will permit spacing prime mover to safe position from fire hazard and provide means for transmitting reasonable full power to all machinery.

6. Prime mover must deliver satisfactory power requirements at all speeds; accelerate and decelerate promptly when crank carries no counterweight to equalize well load of waking beam. Selection of gas engines should be based on accurate horsepower tests, with 25 to 40 per cent additional horsepower allowed to give long service and to obtain slow pick-up of dead loads by means of throw-in clutch.

7. The full complement of equipment must be adaptable to spud, drill, swab, lower and hoist casing and tubing, to "jar" a string of tools that are stuck in the hole, and to pump a well of any depth that is possible to be pumped, with a maximum stroke of 72 inches, at a speed of from 12 to 30 strokes per minute.

8. In so far as it is possible, all items of the equipment should be of adequate size, quality, and workmanship to satisfy the accepted standards of proper application of power to be used.

9. It should be easy to replace parts and to repair speedily in the field.

I believe these will answer quite satisfactorily all fundamental requirements that are most needed without much change in the general layout from that used at present until we at least are able to determine a better means of transmission drive for the bull wheels to overcome the objections of using bull ropes. The cheapness and simplicity of the present method is a problem requiring individual study to initiate a decided improvement. The need for changing such equipment as the rope driven bull wheel in a radical manner is not so real as it first appears, but it may be well considered. In regard to the calf wheel, a better location to accomplish correct spooling alignment and to reduce eccentricity of derrick load would be most welcome, if accomplished at not too great expense. It is one thing to improve mechanical equipment and another to accomplish the improvement in such a way that simplicity is not sacrificed and the capital investment, fixed charges, etc., amount to less than a few extra bull ropes per well. The transmission of the power from prime mover to crank shaft should be improved by all means. This would appear to be the prime objective for the engineer.

Limitations of Equipment

Cable-tool drilling derricks and derricks of short height used to replace rotary derricks have generally a base 20 feet square. To crowd into one corner of the derrick a calf wheel with bearings 6 feet 6 inches apart it is necessary to set the front and back jack posts supporting the bearings of the band wheel crank shaft not further apart than 4 feet 4 inches, C to C distance. Otherwise the drive sprocket on the outer end of crank shaft used to drive the calf wheel will not be in alignment. Now, in order to use standard makes of chain driven sand reels, a minimum space of 15 inches from inside edge of front jack post bearing to outside flange hub of band wheel must be allowed to accommodate sand reel clutch and drive sprocket attachment. This means that any additional width of band wheel above 14 inches cannot well be used in conjunction with present size chain driven sand reels, even when back jack post is notched very deeply to make room for the tug rim.

It is very well known that 12 inches, and even 14 inches width of belts are not large enough for the heavy loads they must transmit at very slow speeds, frequently not over 600 feet per minute. We must therefore consider increasing not only the width of the band wheel face but the diameter likewise, so that the driver pulley may be increased to not less than 22 inches in diameter. This calls for better steel crank shafts, longer in length, better bearings and supports, wider base derrick than 20-foot standard, and more elevation of some machinery supports. We may then use belting 16 to 18 inches in width, of sufficient thickness and weight to avoid extreme tautness, so that our main transmission will be more nearly correct to handle pumping loads of 200 to 800 bbls. per day in cases where wells are over 3,000 feet deep. At present it is doubtful if one can find any larger belts than 14-inch used for this purpose. Generally 12-inch is the maximum width permissable, due to limitations for larger dimensions above mentioned.

When drilling a well with steam engine a 28 or 30-inch diameter driver pulley is used. The speed at which the belt operates is much greater than when pumping and the arc of belt contact is much better. It is generally after the drilling is over and a gas engine is substituted that the belt troubles become most aggravating. Electric motor drives show a slightly improved belting condition but the low mechanical efficiency of rig equipment has retarded its widespread use where cheap fuel is available. This leads to the idea of the special pumping unit and the development of some special hoists to be used in conjunction so that they may be used for long periods of time.

Pumping and Hoisting Units

As mentioned before, two principal methods have come into much favor for economical pumping within the last three years. One embodies the use of direct geared crank shaft with gears completely enclosed and massive enough to carry heavy loads. The other is a hydraulically operated set of pistons used to raise and lower the sucker rods for extremely long strokes at any desirable motion.

The hydraulic apparatus is limited to actuating the pump, and aside from a smoothness of reciprocating motion obtained it possesses no mechanical advantage over the use of a walking beam carefully manipulated. For taking care of hoisting and well work the usual standard rig equipment is left in place and the same engine is used to operate the hydraulic pumps. Belt loads are still excessive, generally, and the space around the well is necessarily somewhat crowded. It accomplishes the desired retarding of speed at each end of the polish rod stroke which is reflected in somewhat longer life of the sucker rods, according to claims of those who have adopted this principle.

Reduction Geared Equipment

Reduction geared units are generally used only for pumping, hoisting rods and tubing, and bailing. They are now being tried for drilling in small diameter holes at depths where motion of beam is not likely to be very fast. To arrange a complete drilling layout it is necessary to use an expensive hoist in lieu of the standard calf wheel; to make special provisions for operating the standard bull wheel by means of a chain drive across the derrick floor from the calf wheel; and, to provide the latter with a counter line shaft, generally with 2-speed sprockets, which must be driven by a chain from the outboard end of main crank shaft. The present sand reel in some cases only may be used where it is possible to true spooling alignment with the well hole. Generally we may say, without exception as to make of geared unit now in use, that many provisions are yet to be made for proper arrangement and design of cut-off clutches. To take care of all cable-tool requirements it will be necessary to use clutch operated driver sprockets and driven sprockets, longer shaft extensions and probably three bearings for the crank shaft. An outside pedestal bearing will likely be necessary for the driving shaft, especially when double reduction gears are used, in order to provide extension sufficient to place motive power conveniently in the clear. When this is finally accomplished the revolutionary character of the equipment will necessitate, for drilling, the use of the prime mover that will run in one direction of rotation as readily as in the other and be instantly reversible. A long process of adjustment on the part of the operators to install them properly and to learn how to operate will next be in order. Electric motors will likely be the only suitable power for all purposes.

Almost any desired gear reduction is possible. A satisfactory reduction for use with a 75 horsepower drilling motor will be somewhere between 11 and 12 to 1. When adjusted for pumping this will have to be changed if the speed of the pumping motor is different. Likewise the sprocket ratio of any drilling rig hoist that is left permanently in place will likely need to be changed.

Operating in Pumping

Reduction geared equipment is now operated successfully for pumping with an internal combustion engine. Unless gear ratios are taken into account by engineers when such equipment is planned for drilling purposes, (assuming a means of operating a bull wheel is provided) so that the type of replacement power unit to be used for pumping will be anticipated and incorporated in the plans, many changes may be necessary to accomplish proper working speeds later, and extra gears for the purpose may have to be kept available in warehouse stock. Very successful use has been obtained by one of the major oil companies for pumping with slow speed oil field engines. These are equipped

(Continued on Page 122)

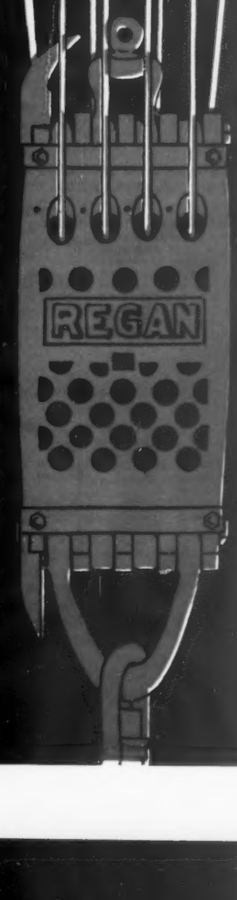
COMPARATIVE ESTIMATES OF COST FOR RIG EQUIPMENT (MACHINERY) INSTALLED TO DRILL WELL WITH CABLE TOOLS AND RE-EQUIP FOR HEAVY PUMPING BY SELECTED METHODS (WALKS, PLATFORMS AND DERRICKS ARE OMITTED—MACHINERY HOUSE INCLUDED)

Types of Power—		OLD: Present Standard equipment for drilling with wood machinery supports, wood housing, steel bull and calf wheel posts and steel wheels, 14-inch drilling belt, etc., and equipping pumper with concrete base for engine, 3,600-pound equalizer on bandwheel, and leaving bull wheel in place.			FIRST: Dual System (for heavy load), using Standard drilling equipment as before, replacing for pumping with Geared Crank Unit with counter-balanced crank and special hoist in derrick.			SECOND: Using enlarged standard rig layout with steel jack posts on concrete base, 14-foot diameter bandwheel with 18-inch face, 6-hole crank, 18-inch belting and extra heavy equipment in steel housing.			(A) Using Special Geared Crank Unit and special hoists throughout, but salvaging drilling rig hoists when used for pumping, and substituting special two-speed tubing hoists.		THIRD (B) Using Universal Drilling and Pumping Rig Equipment.				
		Cost For Driller	Converted To Light Pumper Using 40/80hp. O.F.Gas Engine	Pump'g With 20/50hp. Elec. Motor	Cost For Driller	Pumper Direct Connected With 70 hp. Multi-Cyl. Gas Engine With Reverse	Pumper Direct Con-nected With Electric Motor	Pumper Belted To 40/80hp. Engine With O.F.Gas Reverse	Cost For Driller	Converted Using 50/100hp. Pumper— Gas 3,600-lb. Equalizer, Using 40/80hp. Gas Eng. 22" Diam. Pulley	Band-wheel, Counter-balance, etc.	Using Electric 20/50hp. Motor And Counter-Shaft	Cost For Driller Not Applicable at Present	Converted To Pumper Using 20/50hp. Motor See Dual System	Cost For Driller	Pumper Using Same Prime Mover	Pumper Using 40/80hp. Gas Engine	Pumper, 70hp. Using 30hp. Slip Ring Motor	Pumper, 70hp. Multi-Cylinder Gas Engine With Reverse
With 12x12 steam engine, 50 hp. Boiler, Turbine Light Plant; no outside lines.	Investment		10,600	10,200		16,000	15,700	16,500		11,800	13,000	11,900							
	Salvage		3,600	3,600		5,100	5,100	5,100		3,600	3,600	3,600							
	Net invest.	7,100	7,000	6,600	7,100	10,900	10,600	11,400	8,800	8,200	9,400	8,300	Present		9,100	.....	9,600	8,000	9,000
Electricity, 75 hp. Motor, Countershaft, Controllers, etc; no outside wiring.	Investment		10,700	9,670			15,000					10,700		14,700	Two Speed	Two Speed 9,000		Two Speed 10,200	
	Salvage		3,700	3,400			4,600					3,400		5,400		700		3,000	
	Net Invest.	7,300	7,000	6,270	7,300	.....	10,400	.....	8,700	.....	.....	7,300	12,300	9,300	9,000	8,300	.....	7,200	.....
Multi-Cyl. Gasoline Engines, 120 hp.; Special Electric-Light Plant.	Investment		13,900	13,500		19,400	19,100	19,900		15,000	16,200	15,600	Not Applicable at Present	See Dual System	Two Speed	Two Speed 11,000	Two Speed 14,400	Two Speed 12,800	Two Speed 13,100
	Salvage		6,000	6,000		6,500	6,500	6,500		6,000	6,000	6,000				1,600	4,800	4,600	4,200
	Net Invest.	9,100	7,900	7,500	9,100	12,900	12,600	13,400	12,000	9,000	10,200	9,600			11,000	9,400	9,600	8,200	8,900
50/110 hp. Oil-Field Gas Engine; Special Electric-Light Plant.	Investment		Using Drilling Engine To Pump								10,800		Not Applicable at Present	See Dual System	Single Speed	Single Speed 10,400			
	Salvage										1,300					1,600			
	Net Invest.	8,700	8,000	.....					10,500	.....	9,500	.....			10,400	8,800	.....	.....	.....

NOTE—"Investment" in each case represents the total capital expenditure for all rig equipment, including amount required to convert driller into pumper.

The danger line is the wire line

The life of wire lines depends upon bearings



The advantage of using two bearings, one on each side of the sheave, instead of one bearing in the sheave, is obvious. This construction provides a wide bearing base. The use of two bearings (Regan type) eliminates excessive wear from side drag from the crown block and prevents the rollers from wearing cone-shaped. This guarantees minimum friction in the bearings which in turn eliminates destructive slippage of the wire lines. As a result the life of the wire lines is greatly lengthened.

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DEVELOPMENTS IN VENEZUELA REVIEWED BY BRITISH GEOLOGIST

By Fred J. Leggitt

The complete story of oil in Venezuela would make romantic reading but this is an interesting task yet to be attempted. However, a brief look round, and backwards, will not come amiss at a time when even greater speed-up plans are contemplated in a country which has already been the scene of a remarkable transformation during the past two years.

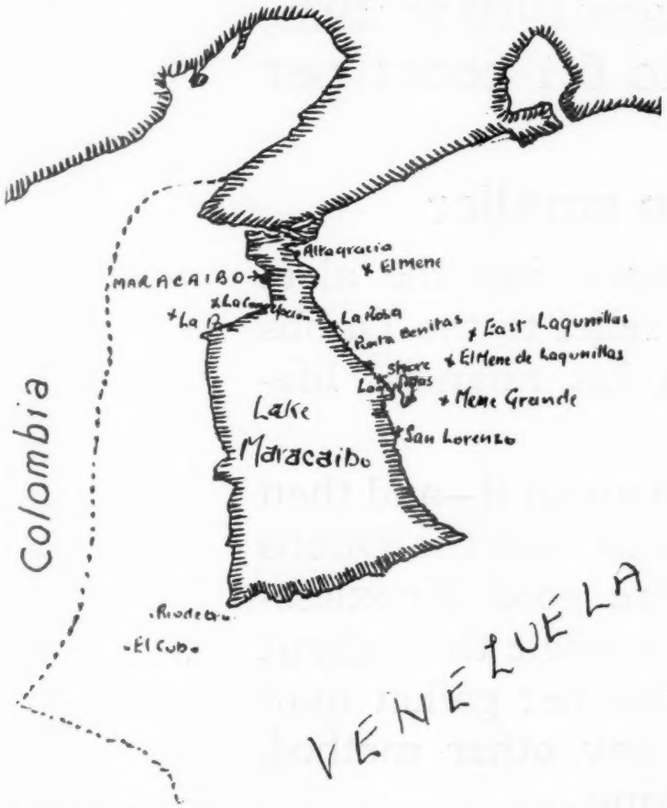
Operations were commenced two or three years before the European War, but no startling results had been recorded by the end of 1914, and work was practically brought to a standstill until some time after the Armistice. Then, wells were drilled in for small producers from time to time and much geological information was obtained.

Still the rate of progress was not to be remarked on until in 1922, when startling even those working in the vicinity, and reverberating through every corner of the petroleum world, well No. 4 in the La Rosa field of the Venezuelan Oil Concessions, at a depth of 1,509 feet, suddenly flowed wild. This was the first property at a place called Mene Grande. Furthermore, the British Controlled was finding the highest gravity oil in Venezuela at its El Mene field.

New Lagunillas Field

Last year fresh history was made by the discovery of a new producing area, known as Lagunillas. The Venezuela Gulf Oil Co., was the pioneer here, but within a few months both the Venezuelan Oil Concessions and the Lago Petroleum Corp. had begun work. Now, the rivalry and haste for completion and biggest number of 4,000-bbl. producers, which are the rule, are as keen as any price-cutting competition the gasoline companies indulge in at the other end of the oil business.

Besides such recognized and fairly well-known fields as those mentioned, there are two smaller camps, La Concepcion and La Paz, situated 17 and 31 kilometers respectively inland from Maracaibo, which produced a combined total of 40,000 barrels of oil per week. There are numerous exploration outfits, some in comparatively advanced stages



real gusher in the country, and gave 100,000 bbls. of oil in one week, after which it sanded.

La Rosa immediately became a center of great interest to progressive oil companies, prepared to launch out on a big scale. In a short time, the Venezuelan Gulf Oil Co. was working, actually, in the lake of Maracaibo, and what is more, getting good wells. The Lago Petroleum Corp., started its very successful campaign in the same neighborhood and competition became more and more keen, much activity being displayed to obtain largest flush production. In this direction the efforts of the Lago were most amply rewarded, particularly for a long period at the end of 1925, although the results were so excellent that the big outlay and expenses involved were more than justified, in the case of all three companies.

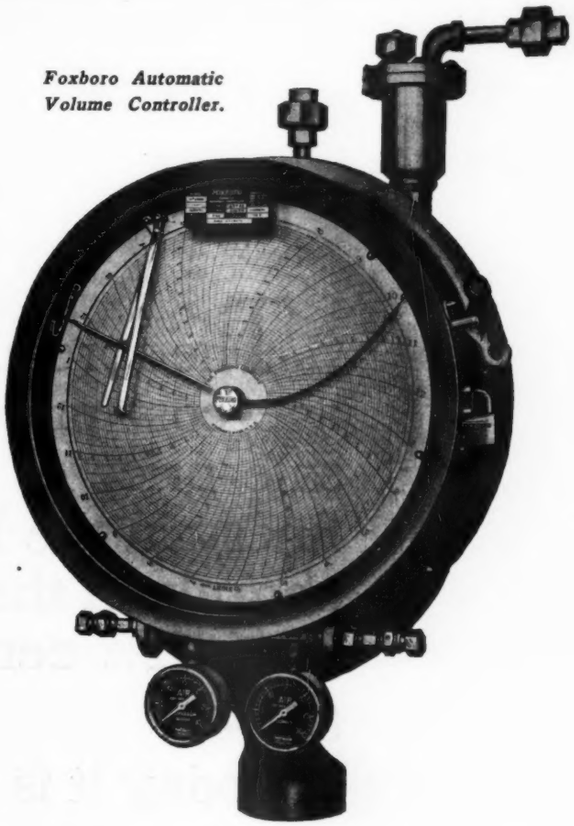
In addition to the progress in La Rosa, during this time, the Caribbean Petroleum Co. was steadily developing its of development. Two of the latter are El Cubo and Rio de Oro, both places where the Colon Development Co., has been working over 10 years.

The base for all these activities, a gathering and disbursing place for the men, material and money pouring into the country, is the city of Maracaibo, about which a word or two must surely be said.

Twenty years ago just a market town on the shores of Lake Maracaibo, exporting its quota of coffee, hides, sugar and cacao, with even then a regular service of Red "D" Line steamers from New York, Maracaibo is today a city of 60,000 inhabitants, alive with energy, and throbbing with the pulsating interests of a regular metropolis. The buildings are gaily painted, and the dwelling houses unhygienic—above all, a place seething with the contrasts and excesses only to be found in a "boom" town, enveloped in an exotic atmosphere.

For 1923, the production of oil in

Foxboro Automatic Volume Controller.



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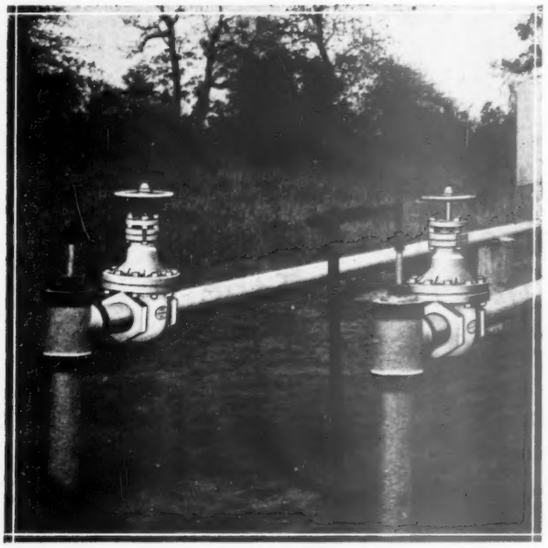

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Venezuela was about 4,000,000 bbls. In 1924, this increased to very nearly 10,000,000. And the oil produced in January, 1927, is at the rate of over 50,000,000 bbls. per annum. Facts such as these call for attention. Altogether, nearly 800 wells have been drilled to depths varying from one to more than 4,000 feet. These are only approximate figures, but they are sufficiently accurate to enable the serious observer to gauge to some extent the amount of effort required to yield such rapid progress. The travelled oil man will be able to visualize, if only vaguely, the difference that such a sudden foreign influence has made to a hitherto typically lethargic tropical town like Maracaibo.

Of the foreign colonies, which grow more numerous every day in the city, about 65 per cent are American, 20 per cent British, 10 per cent Dutch and German, and the remaining 5 per cent Europeans of other nationalities. This, too, is about the proportion that is to be found in the fields.

Operators by Fields

A short summary of the conditions obtaining in the various fields, is given below:

La Rosa.—This is the largest field in Venezuela, and at the time of writing there are about 300 wells, practically all of which are, or have been producers—the number of dry or unsuccessful holes being not more than a dozen.

There are three companies operating in this district. The Venezuela Gulf Oil Co. works a number of concessions which are either owned or leased by it from various syndicates, and include:

Superior, an oblong parcel, about 2,000 by 1,000 meters; Michigan, an oblong parcel, about 1,500 by 1,000 meters; and Rodriguez, an oblong parcel, about 2,500 by 1,000 meters.

All the above are actually situated in the lake—the Lake of Maracaibo—but as the depth of the water does not exceed 16 feet at any part of these areas, the difficulties to be encountered are not so serious as might be supposed. The Gulf has now completed about 80 wells, and has a daily production of about 30,000 bbls.

Nearly half of this production is obtained from three wells, Nos. 7, 9 and 12 Rodriguez, which have been noticeably and rather surprisingly successful.

The Lago Petroleum Corp. has the right to drill in any part of the lake, in the neighborhood of La Rosa, which is not already leased by the Venezuela Gulf Oil Co. About 90 wells have been completed, and the daily production is about 25,000 bbls. The Lago has from time to time endeavored to offset the efforts of the Gulf in its Rodriguez parcel, but has not had any really useful results from this part of the field.

The Venezuelan Oil Concessions, Ltd. has to locate wells on the shore, above the high-water mark, in any part of La Rosa. Its spacing scheme is adhered to so strictly that wells are found situated in the Gulf and Lago's tank farms, by the side of the main road, in fact, practically anywhere the 200-meter spacing system demands—often to the disgust of the native who may be living too uncomfortably close to the scene of operations. Over 120 wells have been completed, and more than 80 are producing now, very few of these being on the pump. Present production is about 40,000 bbls. per day.

Notes on La Rosa Field

Throughout the whole of the field a layer of coal is encountered, varying from 1 to 2 feet in thickness. This coaly shale is met at depth between 900 and 2,000 feet, depending on the particular section of the field. It is now accepted as a marker by both the Gulf and the Venezuelan Oil Concessions, in the latter case being cored for definitely.

An inconsistency of the formation is the fact that the top of the first tar sands is found at so greatly differing depths as only 20 feet below the coal in some wells, and as much as 240 feet in others. As a rule, drilling has been stopped about 450 feet below the coal, and wells were formerly brought in from this depth. First and second level oils are easily classified, and there is a so-called third level which, however, is not always found.

The tendency has, latterly, been to drill deeper, and some wells are carried down to 750 feet below the coal. The result is generally a slightly increased production together with greater gas pressure, and consequently a longer flow. Gravity of first level oil varies from about 19.6 to 23.4, and that of second level from 23.4 to about 25.6. Gasoline content of La Rosa oil is about 14 per cent.

All the oil, in the case of each of the three companies, is shipped direct from La Rosa to various terminals and refineries. The Gulf sends its production in shallow draught tankers, carrying about 15,000 bbls., to Paraguana, a deep water port on the Caribbean Seaboard of Venezuela. The Lago has a refinery and reshipping installation at Aruba, one of the Dutch West Indian Islands, while the Venezuelan Oil Concessions' oil goes to Curacao, another Dutch island just over 220 miles from La Rosa.

Casing schemes vary, of course, with the different companies. Both Lago and the Gulf usually cement a string of 15½-inch casing around 300 feet, and carry on with a 12½-inch water string, followed by an 8¼-inch production string. Some times a liner, 6-inch or 4½-inch, is used, and tubing is generally inserted to just above the top of the perforations. The Venezuelan Oil Concessions generally cement a 10-inch water string about 15 feet below the coaly shale, and run in with 6¼-inch casing, perforated opposite all oil sands with ⅞-inch holes, to the bottom of the hole—tubing being used as flowstring.

The depth of the wells varies from 1,500 to about 2,850 feet, although the latter figure may be increased in the near future. Flush productions of 15,000 bbls. have been obtained, but an initial flow of about 1,200 bbls. represents a fair average for the field.

The Venezuelan Oil Concessions is working to the biggest program, having about 20 strings running, rotary throughout. Cable tool outfits are used extensively for cleanout and deepening purposes, the practice being, on completion of a well, to remove drawworks and install bull wheel, etc. The Lago has only six strings working, and one or two repair outfits, while the Gulf has seven rotaries, and also use cable tools for cleaning out.

Following on a gas expert's report, the Venezuelan Oil Concessions is erecting two plants for recovering gasoline from casinghead and other gas which, at present, either escapes into the atmosphere or, as in a few cases, is piped off to feed a number of boilers at various drilling locations. Other developments include the prospective building of a small refinery by the Lago corporation; also the erection of an adequate ice factory, which is long overdue, and the construction of more storage tanks by all companies as the field develops.

The total proven area of the field is about 10 by 6 kilometers, and it is still extending in three directions, northerly, easterly and southerly. The general formation is not rocky and fairly quick drilling results are possible. Average time for the completion of a well from the date of rigging up is two months, except in the case of interior wells which are not so deep, and a week less is then the rule.

La Rosa is in the district of Bolivar, itself in the State of Zulia—one of the 20 states of Venezuela—and is ruled over by a president, General Vincencio Perez Soto, who is in turn responsible to the main Government at Caracas, the capital of the republic. It is 25 miles from Maracaibo, and there is a regular and dependable service of motor launches.

Mene Grande

Mene Grande is the property of the Caribbean Petroleum Co., one of the subsidiaries of the Royal Dutch-Shell group. Although the Caribbean has been working since 1912, development has been comparatively slow until the past two years, since there are no competitors in the district, as in the case of the La Rosa. One result of this more gradual

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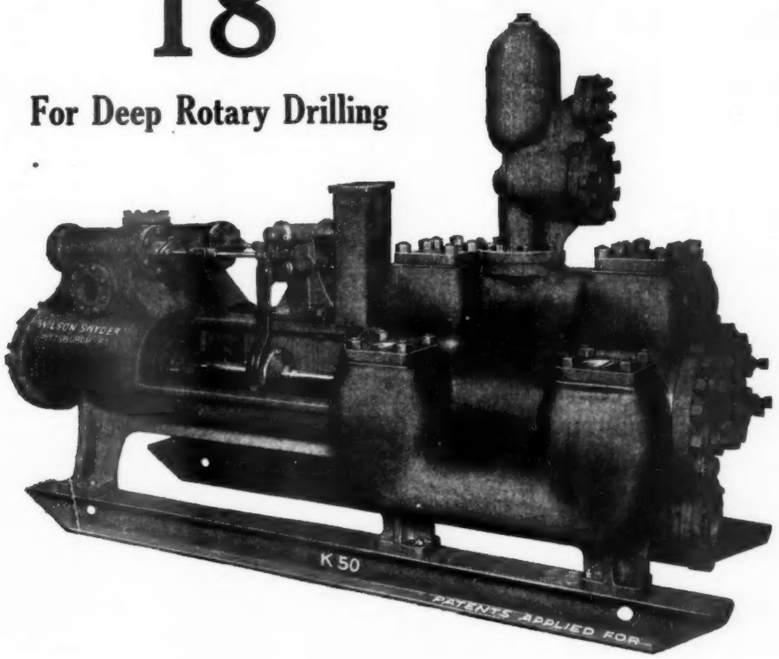

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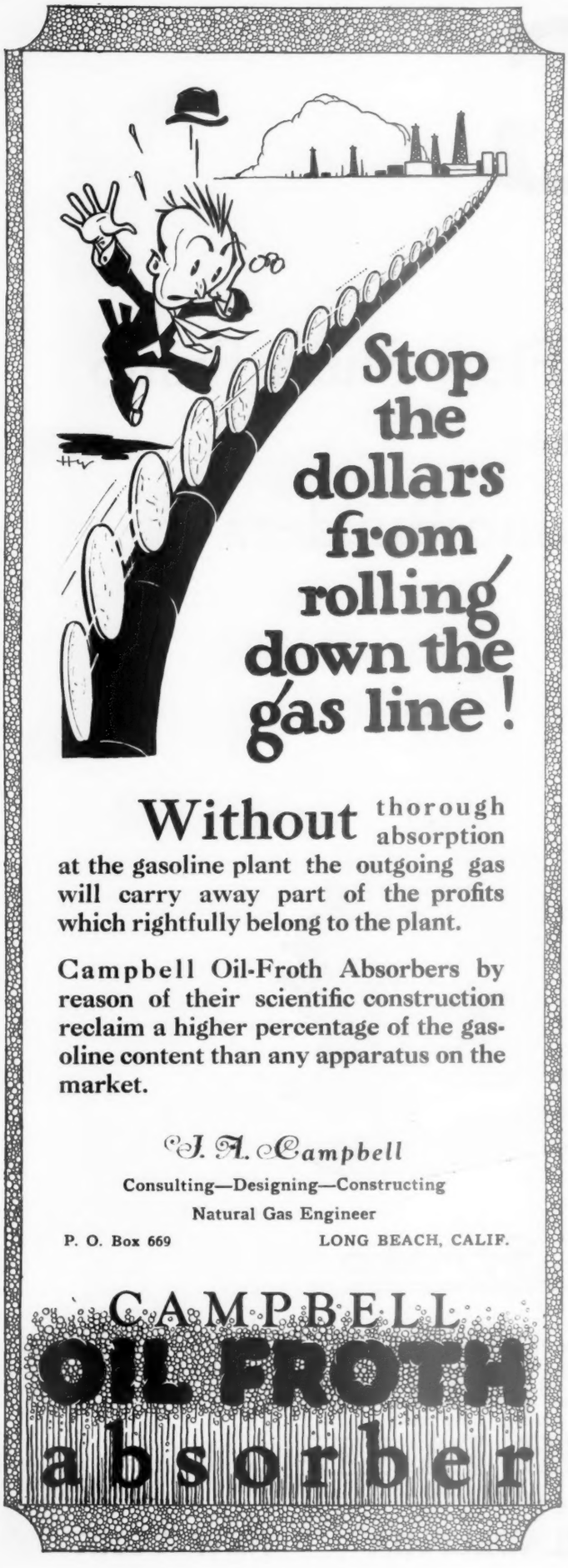
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progress has been the provision of better accommodation, more methodical planning of roads and general layout of the camp.

There have been over 100 wells drilled, of which nearly 80 are producing regularly now. Sanding up and consequent cleanout troubles are not so pronounced as in La Rosa, and an average daily production of over 30,000 bbls. is obtained. This could be rapidly increased if the need arose as, owing to lack of transport facilities, several good wells were recently shut in.

Late results from this field have been most encouraging. No. 37, at one time the southernmost well, is now flowing about 2,000 bbls. daily, after an average daily production for the past 18 months of at least 3,000 bbls. No. 67 was unlucky—blowouts, crooked hole and other driller's bugbears being experienced; but finally the well was brought in satisfactorily at about 5,000 bbls., and further increased the southern boundary.

Rotary was introduced only in 1925, and the first two wells, Nos. 76 and 77, drilled simultaneously throughout by rotary, were distinct successes. Full geological information was obtained and the wells came in flowing about 3,500 and 2,000 bbls. respectively, and after six months were still producing about 1,500 and 800 bbls each.

A light oil was discovered in the latter part of 1925, and 1,500 bbls. a day of this better quality oil were obtained from the first two wells. Work was soon put in hand to deepen several of the older wells with a view to increasing this light oil production. Depth of holes varies from 1,200 to over 3,000 feet.

Mene Grande is situated 18 kilometers from San Lorenzo, a shipping port on Lake Maracaibo. The oil is piped to San Lorenzo, at which settlement there is also a small refinery where sufficient crude is refined to meet the gasoline requirements of the company and for local sales in Venezuela. San Lorenzo is about 65 kilometers from Maracaibo, on the opposite side of the lake, as in the case of La Rosa. Gasoline content of Mene Grande crude is 8 to 9 per cent—a very heavy oil. A light passenger and freight railroad connects San Lorenzo with Mene Grande, constructed by the Caribbean Petroleum Co.

El Mene

This property, belonging to the British Controlled Oilfields, has the next largest production—about 8,000 bbls. daily. There are over 130 wells completed, and since deeper drilling has been undertaken, which is a recent innovation, greater initial productions have been obtained. The oil from this field is a light greenish color, averages between 38 and 40 and has a gasoline content of 41 per cent.

El Mene oil is shipped from Altagracia, a terminal port on the lake practically opposite Maracaibo, and therefore about 20 kilometers from it in a direct line. El Mene itself is 23 kilometers inland from Altagracia, and a light railroad has been constructed between the two camps.

La Concepcion

The Venezuelan Oil Concessions owns this field, and started drilling in 1922, incidentally finding its first well, the best one yet. About 50 wells have been or are in the course of being completed, a daily production of about 3,500 bbls. being obtained. The results from La Concepcion have been somewhat disappointing. A very good crude is obtained but the trouble is the rapid and continuous sanding up of wells and the consequent length of time, in proportion to producing days, spent in cleanout operations.

For instance, a well is brought in and flows 800 bbls. the first day. This drops to 600 bbls. the next day, and in a fortnight the production may have fallen to zero.

Drilling time is slow. Cable tool outfits have been used exclusively, although rotary was introduced toward the end of last year. Three wells per month are usually spudded in, and the field tends to develop in a regular form. The oil, which contains about 18 per cent gasoline, is piped to Punta Piedras, a shipping terminal some 5 kilometers south of Maracaibo—the only shipping point on this side of the lake.

La Paz

La Paz is also the property of the Venezuelan Oil Concessions, and here about 20 wells have been completed, producing between them nearly 3,000 bbls. of oil per day. Work is proceeding on four rigs, cable tools being used as in the case of La Concepcion. Conditions here are very similar to those of the preceding field; sanding up troubles being frequent and of serious consequence for the development of the field.

Sibucara

The Venezuelan Oil Concessions is drilling an exploration well at a place called Sibucara, which is only 7 kilometers from Maracaibo. Work was started in April last, but a blowout and fire when about 1,500 feet of hole had been made has caused much delay. A slight show was reported at 510 feet.

Shore Lagunillas

This is the latest field in Venezuela, and rapid developments are foreshadowed. Three companies, as in La Rosa, are operating.

The Gulf drilled and completed the first well, which was carried to a depth of 3,500 feet, and then came in at the rate of 4,000 bbls. daily. In a few weeks both the Lago and the Venezuelan Oil Concessions were building rigs, and the race for most flush production started. The latest report from this part of Venezuela is that No. 4, of the Venezuelan Oil Concessions, has been brought in for 3,800 bbls.

Shore Lagunillas, as its name implies, is on the shore of Lake Maracaibo, and is between La Rosa and San Lorenzo, being about 30 kilometers south of La Rosa.

El Mene De Lagunillas

El Mene De Lagunillas is an exploration camp, about 15 kilometers inland from Shore Lagunillas, where the Venezuelan Oil Concessions is drilling two wells. Top tar sand was reported at 1,338 feet in No. 1, and at 520 feet in No. 2. Difficulties of water and transportation have slowed down the work considerably.

East Lagunillas

The Venezuelan Oil Concessions is also wildcatting farther in this neighborhood, a location having been selected about 8 kilometers in a northeasterly direction from El Mene de Lagunillas.

Punta Benitas

Punta Benitas is a point 10 kilometers south of La Rosa, where the Gulf company has drilled a successful exploration well. The Venezuelan Oil Concessions is also drilling in this neighborhood.

(The indications from the above are that a long stretch of partially exploited land on the eastern edge of Lake Maracaibo forms one vast oil field. The measurements of this area are approximately 50 kilometers in length and an unknown breadth. Much development work remains to be done, of course, before definite statements can be made, but certainly, wonderful results are to be expected from this part of the country).

El Cubo

The Colon Development Co.'s camp, El Cubo, is on the Tarra River, some 280 kilometers in a southwesterly direction from Maracaibo. Twelve wells have been completed and their production, estimated ar 3,000 bbls. per day, is shut in, as no oil can be shipped from El Cubo, owing to lack of transport facilities.

In the dry season it takes over a week to reach El Cubo from Maracaibo, although the journey, entirely by water, can be accomplished in two days under favorable conditions. A pipe line project over some 80 kilometers of formidable country, which would mean an outlay of several hundred thousand dollars, is being considered as the best way of getting the oil away.

A rotary well, with special crew, is being drilled at Los Manueles, a small camp some distance from El Cubo. This

(Continued on Page 112)

GUERNSEY COUNTY PRODUCERS BEST REPORTED FROM THE EASTERN FIELDS

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Apr. 4.—In the Niagara lime development in Jackson Township, Guernsey County, NW Section 6, Jackson Township, the Ohio Fuel Supply Co. has completed a test on the L. J. Fulton. It produced 228 bbls. the first 24 hours. In the SW of the same section and township, W. McK. Smith and others drilled a second test on the Andrew Slabie into the same formation, and it produced 210 bbls. the first 24 hours.

In the SW of Section 6, Jackson Township, Guernsey County, the Ohio Fuel Supply Co.'s test on the James H. Fulton produced 177 bbls. the first 24 hours. In Section 13, Killbuck Township, Holmes County, the Kemrow Co.'s second test on the A. C. Fites is a gasser in the Clinton good for 3,000,000 feet. In Section 10, Hopewell Township, Licking County, the Pure Oil Co.'s test on the C. Ensworthy is good for 50 bbls. in the Clinton.

Holmes County

In Lot 3, Hardin Township, Holmes County, the Kemrow Co. completed a second test on the Louisa Coon farm. It produced 125 bbls. the first 24 hours after completed and shot in the Clinton sand. In Lot 7, Monroe Township, the Ohio Oil Co. completed and shot in the same formation No. 4 on the Olive M. Smitheiser farm. It is good for 50 bbls. a day.

In Hardy Township, Holmes County, the East Ohio Gas Co. completed No. 3 on the J. E. Miller farm. It is good for 55 bbls. a day. The Hope Construction & Refining Co. has started to drill No. 3 on the S. Uffner farm.

In Section 21, Fallsburg Township, Licking County, Sterl C. Brown has completed in the Berea grit No. 3 on the F. E. Baughman farm. It produced 28 bbls. the first 24 hours after shot in the Berea grit.

In the NE of Section 28, Ward Township, Hocking County, Cohen & Co. completed a test on the Edward Pummel farm and dry in the Clinton sand. In the southwest quarter of Section 21, Jackson Township, Knox County, the Arkansas Fuel Oil Co.'s No. 5 on the Harry R. Hall farm is dry in the Berea grit.

Athens County

In Section 22, Alexander Township, Athens County, the Biddle Oil & Gas Co. has completed and shot in the Berea grit No. 7 on the John F. Biddle heirs' farm. It is not good for more than 7 bbls. a day. On the south side of Newark City, Newark Township, Licking County, W. W. & A. T. Wehrle completed in the same formation a test on the William Vogelmier farm. It is a light gasser in the Clinton sand.

In Section 17, Alexander Township, Athens County, in the Fisher Pool, J. A. Ronshqusen & Co. completed in the Berea grit a test on the James A. Casset farm. It is a duster. In Union district, Licking County, 3 miles west of Heath, Robinson and others completed a test on the Olive Lees farm. It is a light gasser in the Clinton sand. In Section 20, Madison Township, Perry County, the Athy Oil Co. has a rig up on the Belick Brothers' farm.

In the deep-sand territory in southeast Ohio, the Empire Gas & Fuel Co. completed and shot in the Clinton sand No. 4 on the Delpha Netherow farm. It produced 88 bbls. the first 24 hours.

In the SE of Section 17, Reading Township, Fairfield County, the Hope Construction & Refining Co. completed in the Clinton sand a test on the D. T. Deam farm, good for 4 bbls. of oil and 200,000 feet of gas.

In the NW of Section 18, Sutton Township, Meigs County, the Ohio Fuel Supply Co. completed in the Berea grit No. 3 on the Carl J. and William R. Easterly farm and good for 10 bbls. a day. In Lot 288, same township, the Pennsylvania Berea Co. completed in the same formation No. 3 on the Hannah M. Capehart farm. It is a gasser good for 1,500,000 feet.

West Virginia

The South Penn Oil Co.'s No. 53 O. D. Stockly is good for 40 bbls. The location is in the Big Injun development in Henry district, Clay County. In the same district, the Virginian Gasoline & Oil Co. got a 25-bbl. producer at No. 16 J. B. Casto 260 acres.

In Henry district, Clay County, the Virginian Gasoline & Oil Co. completed in the Big Injun sand No. 8 on the Lockhart tract good for 10 bbls. a day. In the same district, the Ohio Fuel Oil Co. completed a test on the C. P. Reed farm. It is a light gasser, 500 feet west of the company's test on the J. and L. D. Reed farm.

On the Kanawha River, Sheridan district, Calhoun County, the Hope Construction & Refining Co. had in the salt sand a test on the J. P. Knight farm, good for 8 bbls. natural. The location is 4,000 feet northeast of T. J. Crowley's test on the George Cooper farm.

In Scott district, Boone County the United Fuel Gas Co. completed in the Big Injun sand No. 8 on the Horse Creek tract. It is a light gasser. In Crook district, Godfrey L. Cabot has a gasser in the same formation at a second test on the E. M. Arbogast farm. In Sherman district, Godfrey L. Cabot completed No. 17 on the Federal Coal Co.'s property and is a gasser in the same formation.

Gassers in Lincoln County

In Duval district, Lincoln County, the Cambridge Gas Co. completed in the Berea grit a test on the Columbus Carnes farm. It is a gasser. In Carroll district, L. R. Sweetland has a gasser in the same formation at a No. 16 on Andrew Burns heirs' farm.

In Grant district, Cabell County, W. H. Curtley & Co. completed a test on the W. E. Martin farm. It is a gasser in the Berea grit. In Jefferson district, the David Gas Co. has a gasser in the same formation at a test on the David Miller farm.

In Clay district, Monongalia County, J. A. Phillips & Co. have drilled down to the fifth sand No. 1 on the D. R. Wright farm. It is a gasser.

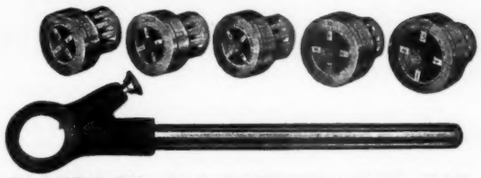
In Sherman district, Calhoun County, Weaver & Lewis have a gasser in the Big Injun sand at a test on the Mary Kelley farm. In Lee district, Martin Crowley has drilled down to the Big Injun sand No. 1 on the M. M. Sommers farm. It is dry. In Otter district, Braxton County, the Hope Natural Gas Co.'s test on the Cecil Gross farm is dry in the Gordon sand.

Drilling Tests

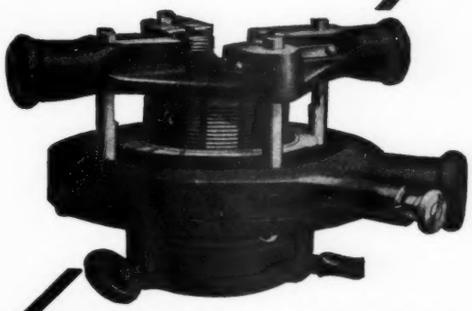
At the mouth of Anderson Creek, Lincoln district, Wayne County, the Public Gas Corp. has started to drill a second test on the T. Caldwell farm, 2,000 feet north of the first. On Slick Rock branch of Breedens Creek, Harvey district, Mingo County, the same company has started to drill No. 4 on the Henry Costerman farm. In McFarlan Creek, Murphy district, the South Penn Oil Co. is drilling another test on the P. S. & S. R. Wilson farm. In the same district, J. F. Deem and others are drilling a second test on the Jacob Lingler farm.

In Liberty district, Marshall County, the Manufacturers Light & Heat Co. completed No. 3 on the Howard heirs' farm. It is a gasser in the Gordon sand. In the same district, the company's second test on the F. L. & V. P. Reid farm is dry and abandoned.

In Lee district, Calhoun County, McIntosh & Scott have a gasser in the Big Injun sand at a second test on the C. C. Starcher farm. In Jefferson Township,



TOLEDO NO. 00-A RATCHET TOOL FOR THREADING 1" TO 2" PIPE.



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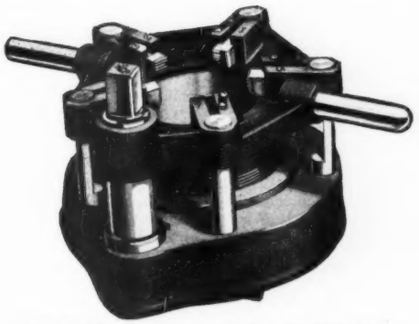

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Lincoln County, the Gas & Electric Co.'s No. 532 on the L. R. Sweetland tract is a gasser in the Berea grit.

In Jefferson district, Lincoln County, the Hope Natural Gas Co. has started to drill a test on the John Linville tract. In the same district, Lockwood & Burns have started to drill on the Preston Bird farm. In McComas district, Cabell County, the American Gas Co. has rig material at a location on the I. D. Cartright farm. In Carroll district, Lincoln County, the Columbia Gas & Electric Co. has started to drill on the Lottie M. Brumfield farm. In the same district, Wysong, James & Co. have made a location on the C. C. McDonald farm.

On Sinking Creek, DeKalb district, Gilmer County, the South Penn Oil Co. has started to drill a test on the D. S. Holbart farm. In Sherman district, Calhoun County, the Hope Natural Gas Co. has a rig up for another test on the Okey Parsons farm. In Union district, Ritchie County, Ira D. Cox has a rig up on the F. J. Richards farm.

Southwest Pennsylvania

In South Strabane Township, Washington County, Percy Tombaugh's farm test on the William D. Phillips farm is a light pumper in the Gantz sand.

OKLAHOMA FIELDS

(Continued from Page 51)

NE cor. NW SW, Section 2-17-10, was completed for 20 bbls. from the Red Fork sand 1,984-2,039 feet after it was shot with 100 quarts. Carter Oil Co.'s No. 1 Harris, NW cor. SW NE, Section 12-17-10, is a Dutcher sand well making 517 bbls. from 2,412-24 feet. W. H. Elson and others' No. 1 Harris, SW cor. NW NE, Section 12-17-10, is producing 720 bbls. from the Dutcher sand 2,417-38 feet. Pioneer Petroleum Co.'s No. 1 Lewis, NW cor., Section 19-17-11, had a show of oil in the Red Fork sand and was drilled on to the Wilcox sand at 2,872-84 feet and abandoned. Carpenter & McClung's No. 3 Jackson, SE cor. NE SW, Section 22-17-11, had the top of the Wilcox sand at 2,502 feet, drilled to 2,511 feet and is making 20 bbls.

C. G. Tibbens' No. 1 Montgomery, SW cor. NE, Section 20-15-9, had a hole full of water in the Wilcox sand and plugged back to the Bartlesville sand 2,659-2,829 feet where it is producing 5 bbls. C. G. Tibbens' No. 4 Fields, SW cor. NW SW, Section 30-15-9 is dry in the Peru sand at 2,345-2,400 feet. Atlantic & Phillips Petroleum Co.'s No. 1 Alcorn, SE cor., Section 19-14-9, is a 35-bbl. well in the Dutcher sand 3,232-44 feet. Gray Oil Co.'s No. 1 Wither, NE cor. NW SE., Section 1-14-10, is a dry hole in the Wilcox sand 3,098-3,124 feet. Murphy & Henry and others' No. 2 fee, SW cor. NW SE, Section 32-14-10, was shot with 20 quarts in the Wilcox sand 3,366-88 feet and is making 70 bbls. T. B. Slick & The Prairie Oil & Gas Co.'s No. 2 Doyle, CNL SW SE, Section 32-14-10, is dry and abandoned in the Wilcox sand 3,381-87 feet. The Prairie Oil & Gas Co. is building the rig for No. 1 Hicks, C NW SE, Section 6-15-7.

Kay County

Harris & Hahn's No. 1 Jameson, C SE NE, Section 8-27-1w, in the Blackwell Field, is an old well being deepened and now drilling at 3,448 feet.

The Prairie Oil & Gas Co.'s No. 1 Hargraves, SE cor. NE, Section 19-27-1w, was shut in for 51,000,000 feet of gas in the top of the sand at 2,490 feet. Gypsy Oil Co. No. 5 Gardner, NW cor. SW, Section 28-25-1w, in the Tonkawa Pool, and old well, was shot with 20 quarts from 4,341-49½ feet without material increase and will be put back on the pump. Comar Oil Co.'s No. 4-W Brown, SE cor. SW SE, Section 16-29-1w, in the North Braman Pool, has been completed for 175 bbls. from the Wilcox sand 3,400-3,551 feet. Carter Oil Co. & Ona Oil Co.'s No. 2 E. Nixon, SW cor. NE, Section 17-29-1, had sand at 2,328-42 feet and is making 112 bbls. No. 3 E. Nixon, NW cor. SW NE, Section 17-29-1, is producing 27,000,000 feet of gas from sand 1,940-85 feet. Marland Oil Co.'s No. 6 E. Dickerson, NW cor. SE, Section 17-29-1, is producing 76 bbls. from sand at 2,328-42 feet. Tidal Oil Co.'s No. 4 Boggs, SW cor. NW SE, Section 8-27-1w, Blackwell Field, a location, has been abandoned. Marland Oil Co. & Phillips Petroleum Co.'s No. 1 William Currie, SW cor. SE SW, Section 6-26-1w, in the Hubbard Pool, an old well deepened to the Wilcox sand 3,713-17 feet which was found carrying water, has been abandoned. Wentz Oil Corp.'s No. 10 Mahoney location, NE cor. SW SE, Section 28-25-1w, Tonkawa Pool, has been abandoned.

Lincoln County

J. A. Hull Oil Co.'s No. 1 Foster, NE cor., Section 27-15-6, had a hole full of water in sand 4,291-94 feet and has been abandoned at a total depth 4,384 feet.

Noble County

George Miller's No. 1 on the 101 Ranch, NE cor., Section 1-24-1, encountered water in the Wilcox sand 4,488-4,569 feet and was abandoned.

Payne County

Noble Oil & Gas Co.'s No. 11 Quay Townsite, NW cor., Section 6-19-6, had water in sand at 3,685-87 feet and has been abandoned at 3,690 feet.

Comanche County

Westheimer & Daube's No. 1 Cox, SW cor. SE SE, Section 13-2-10w, is abandoned at 2,185 feet.

Garfield County

Sinclair Oil & Gas Co.'s No. 46 Hartley, SW cor. NW, Section 18-22-3w, Garber Pool, was completed for 25 bbls. in the Hoy sand 1,390-1,404 feet. No. 46 Windler, NW cor. SE SW, Section 30-22-3w, had sand 2,115-23 feet and plugged back from total depth of 2,250 feet and made 20 bbls.

Grady County

Magnolia Petroleum Co.'s No. 5 Harrison, NE cor. SE NE, Section 28-3-5w, Carter-Knox Pool, is being deepened from 1,855 feet. Berry and others have the rig up for No. 2 Gardner, C SE SE, Section 3-4-8w. Magnolia Petroleum Co. has built a standard rig to deepen No. 2 Smith, SE cor NE, Section 35-5-8w.

Carter Oil Co.'s No. 4 Abernathy, NW cor. NE SW, Section 35-3-5w, in the Carter-Knox Pool, is making 15 bbls. from sand 1,485-92 feet. Magnolia Petroleum Co.'s No. 2 B. Mitchell, NE cor. SE NW, Section 34-3-5w, had the sand from 1,456-60 feet from which it is flowing 30 bbls. No. 2 Miller, NE cor., Section 28-3-5w, is flowing 366 bbls. from sand encountered from 1,752-55 feet. No. 4 Harrison, SE cor. NE NE, Section 28-3-5w, is making 388 bbls. from sand 1,750-62 feet. Critchlow's No. 3 Adair, NE cor. SW NW, Section 27-3-5w is a 165-bbl. well in sand 1,840-44 feet. Amerada Petroleum Corp. & W. H. Gant's No. 3 Hicks, SE cor. SW SE, Section 16-3-5w, had a series of sands from 1,608 feet to 1,725 feet from which it is flowing 100 bbls. No. 2 Hicks, SW cor. NW SE, Section 16-3-5w, is producing 30 bbls. from a series of sands from 1,635 feet to 1,727 feet. Carter Oil Co.'s No. 3 B. A. Horton, NW cor. SE SE, Section 8-3-5w, had the sand 1,863-67 feet and is making 137 bbls. Henry Oil Co. & Sinclair Oil & Gas Co.'s No. 1 Pursley, NE cor. NW SE, Section 26-4-6w, has been abandoned at 3,014 feet.

Kingfisher County

Galt-Brown Oil Co. has the rotary derrick up for No. 1 Johnson, C NW, Section 26-16-5w.

Muskogee County

Vise & Heflin's No. 3 A. Grayson, NE cor NW SW, Section 30-15-15, an old well, is now being cleaned out at 1,535 feet preparatory to deepening. Denton & Marshall moved out a machine for No. 1 A. Taylor, NW cor. SW, Section 16-15-17. J. L. Selby's No. 1 Warner, SW cor. NE, Section 17-15-17, is drilling at 1,700 feet.

W. R. Sommerville's No. 2 Dinwiddie, SE cor. NW NE, Section 17-15-17, was completed for 20,000,000 feet of gas in sand 1,410-15 feet. D. C. Lampton's No. 1 T. Carlina, NE cor. NW SW, Section 20-15-18, is making 2,000,000 feet of gas from sand 720-55 feet.

Okmulgee County

B. Morgan's No. 1 Bird, SE cor. NE SW, Section 8-12-12, is spudding. Turner & Turner and others' No. 1-A Penoka, NE cor. SE SW, Section 9-16-12, is a dry hole in the Wilcox sand 2,399-2,413 feet. W. A. McCullough's No. 5 Flint, NE cor NW NW, Section 26-14-14, was shot with 60 quarts in sand at 1,390-1,400 feet and abandoned. J. L. Selby's No. 9 B Flint, CEL NW SE, Section 26-14-14, is making 1,000,000 feet of gas from sand at 566-86 feet.

Osage County

Phillips Petroleum Co.'s No. 5 NW cor. SW SE, Section 1-27-5, is a rig building. The rig is being built for No. 8 NE cor. SE NE, Section 29-26-6. The rig is also being built for No. 12 SE cor. NE NE, Section 29-26-6. Indian Territory Illuminating Oil Co.'s No. 363 SW cor. SE SW, Section 27-25-8, is spudding. I. D. Simmons' No. 4 NE cor. SW SW, Section 30-24-9, is spudding. American Oil & Development Co. made location for No. 1 NW cor. NE, Section 24-23-10. Spring Oil Co. made location for No. 2 NW cor. SE NE, Section 36-22-11. Tidal Oil Co. made location for No. 2 SE cor. Section 28-21-10.

Phillips Petroleum Co.'s No. 5 NW cor. SW SE, Section 7-27-6, was completed in the Burbank sand 2,955-3,035 feet and swabbed 125 bbls. after a 120-quart shot. Osage Gas Producers Co.'s No. 376 NW cor. SE SW SW, Section 5-27-11, is making 2,500,000 feet of gas from the Mississippi lime 1,857-82 feet. Phillips Petroleum Co.'s No. 8 NE cor. SE SE, Section 20-26-6, had the Burbank sand at 2,900-51 feet made 75 bbls. natural and after a shot of 20 quarts flowed 200 bbls. The Texas Company's No. 6 SE cor. NW NE, Section 28-26-6, was shot with 70 quarts in the Burbank sand 2,932-60 feet and flowed 100 bbls. Indian Territory Illuminating Oil Co.'s No. 357, NW cor. NE, Section 13-24-8, was completed for 17,500,000 feet of gas in sand 2,305-10 feet. Dunnigan and others' No. 4, SE cor. SW, Section 17-24-9, drilled to total depth of 2,543 feet and plugged back to the Bartlesville sand 2,184 feet from which it was formerly producing. Mid-Continent Petroleum Corp.'s No. 5 SE cor. NW, Section 20-24-9, found the top of the Bartlesville sand at 2,124 feet, drilled to 2,160 feet and plugged back to 2,153 feet and after a shot of 30 quarts made 25 bbls. Tidal Oil Co.'s No. 5 NW cor. SE, Section 20-24-9, is making 60 bbls. from the Bartlesville sand 2,209-68 feet. Winona Oil Co.'s No. 22 NE cor. SW NE NE, Section 28-24-10, is a 50-bbl. well in the Cleveland sand 1,361-80 feet. Indian Territory Illuminating Oil Co.'s No. 359 CNL NW NE, Section 29-25-8, is making 5,500,000 feet of gas from the Layton sand 1,350-60 feet. New England Oil & Pipe Line Co.'s No. 2 NE cor. SE SW, Section 17-23-10, made 750 bbls. the first 24 hours from the Wilcox sand 2,491-2,503 feet. Edgington & Mullendore's No. 8 NE cor. NW NW, Section 3-22-9, made 15 bbls. from the Layton sand 1,025-41 feet after it was shot with 75 quarts. F. A. Gillespie's No. 11 SE cor. NE NE, Section 5-20-12 is a dry hole in the Bartlesville sand 1,393-1,464 feet. The Prairie Oil & Gas Co.'s No. 5 CNL NW, Section 31-25-8, was completed for 360 bbls. after two shots in sand 2,476-2,501 feet.

Stephens County

Wirt Franklin made location for No. 2 Apple-Franklin, NW cor. NE SE, Section 24-1s-4w. Magnolia Petroleum Co.'s No. 2 Shaffer-Young, SE cor. SW, Section 29-1-8w, an old well, is running 5-3/16-inch casing to top of sand at 2,425 feet.

Magnolia Petroleum Co.'s No. 6 Hollingsworth, NE cor. SW SW, Section 14-2s-5w, has been abandoned at 1,680 feet. Gilmer and others' No. 1 Stewart, SE cor NE SE, Section 24-1s-4w, is flowing 730 bbls. from a series of sands 2,610-2,932 feet. McBride and others' No. 1 Goodman, SE cor. SW NW, Section 2-1s-4w, has been abandoned at 3,225 feet. Kidney and others' No. 3 Nelson, SW cor. SE NE, Section 28-1s-8w, is dry and abandoned at 1,460 feet. W. H. Gant Trustee, No. 5 School, NW cor. NE NE, Section 36-1s-9w, had an initial production of 55 bbls. from sand 2,158-85 feet. Magnolia Petroleum Co.'s No. 13 D. Russell, SW cor. SE SE, Section 25-1s-9w, flowing 150 bbls. from sand at 2,138-64 feet.

Wagoner County

Central National Oil Co. & Sloman's No. 1-A Morrison, NE cor. NW NW, Section 9-16-15, is dry at 1,134 feet. Mitchell Oil Co.'s No. 1 Grayson, NW cor. NE, Section 14-16-16, is spudding.

Pawnee County

Privett Drilling Co. made location for No. 1 Curtis SE cor. NE SE, Section 28-21-6.

Fern Oil & Gas Co.'s No. 4 Lesher, C SW NW, Section 22-20-6, was shot with 20 quarts in sand 3,056-3,106 feet and made 40 bbls. Sherdian Oil Co.'s No. 1 Tillock, NE cor. SW NE, Section 20-20-10, had the Burgess sand at 2,229-82 feet and after a shot of 220 quarts produced 20 bbls.

Tulsa County

Holmes, Sherry & Carter Oil Co.'s No. 1 Grayson, is a rig in the NE cor. SW SE, Section 32-19-10.

E. A. Craig & Superior Oil Co.'s No. 1 White, CEL W half SW SW, Section 10-19-10, had the Red Fork sand 1,846-57 feet where 40 quarts were shot and the well made 10 bbls. Minshall and others' No. 5 S. Fife, NE cor. SE SW, Section 15-19-11, made 180 bbls. from the Hominy sand 2,089-2,146 feet.

Okfuskee County

The Texas Company's No. 2 Tiger, CEL SE SE, Section 35-11-11, is a rig. Champlin Oil & Refining Co. has built the rig for No. 3 Jacobs, SE cor., Section 15-11-11, to deepen from 2,096 feet.

Josey Oil Co.'s No. 10 McCoy, CNL SW NW, Section 33-12-11, is a Wilcox sand well making 150 bbls. from 3,583-92 feet. No. 15 McCoy, NW cor. SE NW, Section 33-12-11, was also completed in the Wilcox sand 3,604-49 feet for 137 bbls. Champlin Oil Refining Co.'s No. 2 Ingram, SW cor. NW SW, Section 14-11-11, had the Wilcox sand 3,530-52 feet and is making 112 bbls. No. 6 Jacobs, NE cor. SE SE, Section 15-11-11, was completed for 280 bbls. in the Wilcox sand 3,490-3,543 feet. J. J. Deaner's No. 2 Likowsky, NE cor SW, Section 23-11-11, is a 20-bbl. well in the Deaner sand 2,427-37 feet. Atlantic Oil Producing Co. and others' No. 4 Jackson, C NW SW, Section 35-11-11, is making 60 bbls. from the Deaner sand 2,504-13 feet. Link Oil Co. & Carter Oil Co. have the rig up for No. 1 Hully, SE cor. SW NW, Section 29-10-10. Rogers & Wilson have the rig up for No. 1 M. Davis, SE cor. SW NE, Section 5-10-10.

Hughes County

Independent Oil & Gas Co. and others' No. 1 Long, SE cor. NW NW, Section 14-8-9, was deepened from 2,997 feet to sand 3,430-38 feet and is averaging 16 bbls. Gypsy Oil Co. and Coogan and others' No. 1-A Turner, SE cor. NW, Section 32-8-11, had sand 1,385-1,438 feet and 1,553-74 feet where it was shot in for 6,500,000 feet of gas. Burke-Gre Oil Co.'s No. 1 Hamphill, NE cor NW SE, Section 21-8-10, is abandoned at 3,416 feet with a hole full of water. Producers & Refiners Corp.'s No. 1 Shawnego, C NE SW, Section 14-7-8, is dry at 3,381 feet.

Pottawatomie County

Westheimer & Daube made location for No. 1 McKay, NW cor. SW NW, Section 24-7-4. Tidal Oil has abandoned the location for No. 1 S. Pool, SE cor. NE NW, Section 9-9-5.

Seminole County

C. L. McMahon and others have the rig up for No. 1 Sewell, SE cor. NW SW, Section 15-8-8. Independent Oil & Gas Co. & Champlin & Bass made location for No. 2 Sewell, NW cor. SE SW, Section 15-8-8. J. E. Crosbie is building the rig for No. 2 Sewell, SW cor. NE SW, Section 15-8-8. Wentz Oil Corp.'s No. 1 Lamony, SW cor. NW NE, Section 21-8-7, is a rotary rig. Roxana Petroleum Corp. is erecting the rig for No. 5 Taylor, SW cor. SE NE, Section 16-8-6. Phillips Petroleum Co. made location for No. 1 Chupco, NE cor. NW, Section 3-8-6. Mid-Kansas Oil Co. has the rig on the ground for No. 1 Jacksey, SE cor. NE NE, Section 3-8-6. The Texas Company's has the rig on the ground for No. 1

(Continued on Page 153)

Bureau of Mines Statistics for Month of February 1927

By G. R. Hopkins

The production of crude petroleum in the United States in February, 1927, as compiled from pipe-line runs reported to the Bureau of Mines, Department of Commerce, amounted to 67,874,000 bbls., a daily average of 2,424,000 bbls. This is by far the highest daily average production ever recorded, exceeding that of the previous month by 119,000 bbls., or 5 per cent, and the previous record figures of December, 1926, by 100,000 bbls.

The Mid-Continent district was mainly responsible for the increased output of crude petroleum in February. All of the other producing districts, except California and the Gulf Coast, reacted from the shutdowns incurred by the winter season and increased their production.

The largest single factor in the February production increase was the Seminole Field, composed of several pools in the vicinity of the town of Seminole, Okla. This field struck its real stride in February and, though prevented from producing at its greatest capacity by inadequate pipe-line and storage facilities, produced an average of about 275,000 bbls. per day throughout the month. A special canvass of Seminole operations showed that the major portion of the production was being shipped as produced, that considerable was stored in tank farms, but that very little was added to producers' storage (storage at wells). This is in contrast to Smackover, where large amounts were stored in open pits in the boom days.

Daily average imports showed very little change in February, as compared with January. Shipments from Mexico registered a small decline, which was more than offset by increased imports of Venezuelan crude.

As was expected, in view of the record production, crude stocks were increased materially in February. Stocks on hand east of California at the end of the month totaled 285,458,000 bbls., as compared with 278,972,000 bbls. for January, a gain of nearly 6,500,000 bbls. Though this is the greatest increase recorded in this class of stocks since 1923, the total is still below that of a year ago. Stocks of both light and heavy crude in California decreased during February.

Refined Products: Runs to stills of crude petroleum in February amounted to 63,351,000 bbls., of which 60,202,000 bbls. was domestic crude petroleum and 3,149,000 bbls. was foreign crude petroleum. The total represents a daily average of 2,263,000 bbls., which is very close to the record figures of last November.

Gasoline production for the month totaled 25,024,000 bbls., a daily average of 894,000 bbls. This was the first time since July, 1926, that daily gasoline production has failed to increase. Indicated domestic demand rallied from the slump of the previous month, the daily average of 651,000 bbls. being an increase over January of 13 per cent and over February, 1926, of 15 per cent. Stocks of gasoline on hand February 28 amounted to 49,714,000 bbls., which is an increase over the previous month of 3,656,000 bbls., or about half the January increase. At the present rate of total demand, these stocks (49,714,000 bbls.) represent 64 days' supply as compared with 67 days' supply on hand the previous month and 65 days' supply on hand a year ago. Stocks of gas oil and fuel oil continued to decrease as demand for cracking and fuel purposes continued heavy. Stocks of kerosene, lubricants and wax increased as total demand dropped off.

ANALYSIS OF SUPPLY AND DEMAND OF ALL OILS

(Including Wax, Coke and Asphalt in barrels of 42 U. S. gallons)

	December, 1926	January, 1927*	February, 1927	February, 1926
Supply:				
Domestic crude production:				
Light	59,656,000	60,473,000	57,848,000	44,781,000
Heavy	12,405,000	11,002,000	10,026,000	9,835,000
	72,061,000	71,475,000	67,874,000	54,566,000
Daily average	2,325,000	2,306,000	2,424,000	1,949,000
Excess of daily average domestic production over domestic demand	279,000	425,000	483,000	139,000
Imports:				
Crude	4,988,000	4,514,000	4,181,000	3,742,000
Refined	1,318,000	1,269,000	1,508,000	2,001,000
Total supply all oils	78,367,000	77,258,000	73,563,000	60,310,000
Daily average	2,528,000	2,492,000	2,627,000	2,154,000
Change in stocks all oils	3,425,000	7,691,000	8,355,000	†421,000
Demand:				
Total demand	74,942,000	69,567,000	65,208,000	60,731,000
Daily average	2,417,000	2,244,000	2,329,000	2,169,000
Exports:‡				
Crude	1,283,000	1,204,000	1,165,000	1,049,000
Refined	10,235,000	10,062,000	9,686,000	8,998,000
Domestic demand	63,424,000	58,301,000	54,357,000	50,684,000
Daily average	2,046,000	1,881,000	1,941,000	1,810,000
Excess of daily average domestic demand over domestic production	(See above)	(See above)	(See above)	(See above)
Stocks (end of month):				
Crude:				
East of California:§				
Light	225,217,000	230,013,000	236,872,000	329,984,000
Heavy	52,860,000	48,959,000	48,586,000	58,080,000
California:				
Light	30,861,000	31,017,000	29,770,000	44,871,000
Heavy**	87,270,000	87,971,000	87,640,000	86,744,000
Total crude	396,208,000	397,960,000	402,868,000	419,679,000
Total refined	123,245,000	129,184,000	132,631,000	122,895,000
Grand total liquid stocks	519,453,000	527,144,000	535,499,000	542,574,000
Bunker oil (included above in domestic demand)	4,066,000	3,940,000	3,579,000	3,232,000

*Revised. †Decreases. ‡Includes shipments to non-contiguous territories. §Exclusive of producers' stocks. **Includes fuel oil.

PRODUCTION OF CRUDE PETROLEUM BY FIELDS AND STATES WITH CLASSIFICATION BY GRAVITY (Barrels of 42 U. S. gallons)

	January, 1927* Total	January, 1927* Dy. ave.	February, 1927 Total	February, 1927 Dy. ave.	Jan.-Feb., 1927	Jan.-Feb., 1926
Field:						
Appalachian	2,319,000	74,800	2,327,000	83,100	4,646,000	4,286,000
Lima-Indiana	140,000	4,500	156,000	5,600	296,000	315,000
Michigan	29,000	900	29,000	1,000	58,000	4,000
Illinois-S. W. Indiana	642,000	20,700	615,000	22,000	1,257,000	1,344,000
Mid-Continent	40,808,000	1,316,400	40,227,000	1,436,700	81,035,000	60,759,000
Gulf Coast	4,766,000	153,800	4,152,000	148,300	8,918,000	5,326,000
Rocky Mountain	2,586,000	83,400	2,385,000	85,200	4,971,000	5,970,000
California	20,185,000	651,100	17,983,000	642,200	38,168,000	36,234,000
United States total	71,475,000	2,305,600	67,874,000	2,424,100	139,349,000	114,238,000
State:						
Arkansas	4,079,000	131,600	3,549,000	126,800	7,628,000	10,240,000
California	20,185,000	651,000	17,983,000	642,200	38,168,000	36,234,000
Colorado	233,000	7,500	221,000	7,900	454,000	364,000
Illinois	587,000	18,900	557,000	19,900	1,144,000	1,236,000
Indiana	64,000	2,100	70,000	2,500	134,000	129,000
Southwestern	55,000	1,800	58,000	2,100	113,000	108,000
Northeastern	9,000	300	12,000	400	21,000	21,000
Kansas	3,598,000	116,100	3,363,000	120,100	6,961,000	6,134,000
Kentucky	509,000	16,400	502,000	17,900	1,011,000	985,800
Louisiana	1,892,000	61,000	1,733,000	61,900	3,625,000	3,176,000
Gulf Coast	295,000	9,500	276,000	9,900	571,000	601,000
Rest of State	1,597,000	51,500	1,457,000	52,000	3,054,000	2,575,000
Michigan	29,000	900	29,000	1,000	58,000	4,000
Montana	413,000	13,300	407,000	14,600	820,000	838,000
New Mexico	132,000	4,300	135,000	4,800	267,000	244,000
New York	170,000	5,500	169,000	6,000	339,000	290,000
Ohio	579,000	18,700	593,000	21,200	1,172,000	1,115,000
Central and Eastern	448,000	14,500	449,000	16,000	897,000	821,000
Northwestern	131,000	4,200	144,000	5,200	275,000	294,000
Oklahoma	18,497,000	596,700	19,828,000	708,100	38,325,000	26,624,000
Osage County	2,229,000	71,900	2,031,000	72,500	4,260,000	3,912,000
Rest of State	16,268,000	524,800	17,797,000	635,600	34,065,000	22,712,000
Pennsylvania	721,000	23,200	735,000	26,300	1,456,000	1,288,000
Tennessee	5,000	200	4,000	200	9,000	7,200
Texas	17,508,000	564,800	15,906,000	568,100	33,414,000	19,891,000
Gulf Coast	4,471,000	144,300	3,876,000	138,400	8,347,000	4,725,000
Rest of State	13,037,000	420,500	12,030,000	429,700	25,067,000	15,166,000
West Virginia	466,000	15,000	468,000	16,700	934,000	894,000
Wyoming	1,808,000	58,300	1,622,000	57,900	3,430,000	4,524,000
Salt Creek	1,274,000	41,100	1,163,000	41,500	2,437,000	3,256,000
Rest of State	534,000	17,200	459,000	16,400	993,000	1,168,000
Classification by Gravity (approx.):						
Light crude	60,473,000	1,950,700	57,848,000	2,066,000	118,321,000	93,573,000
Heavy crude	11,002,000	354,900	10,026,000	358,100	21,028,000	20,666,000

*Revised.

COMPARATIVE ANALYSES

(Thousands of barrels of 42 U. S. gallons.)

	Runs, Total	Runs, Output Dy.Av.	Imports* Total	Imports* Dy.Av.	Exports* Total	Exports* Dy.Av.	Stocks End of Period	Dom.Demand Total	Dom.Demand Dy.Av.
Crude to stills:									
December, 1926	69,820	2,252	4,988	161	1,283	41	†278,077	.....	...
January, 1927	69,948	2,256	4,514	146	1,204	39	†278,972	.....	...
February, 1927	63,351	2,263	4,181	149	1,165	42	†285,458	.....	...
February, 1926	56,575	2,021	3,743	134	1,049	37	†288,064	.....	...
Gasoline:									
December, 1926	27,498	887	452	15	3,413	110	39,023	21,419	691
January, 1927	27,960	902	520	17	3,557	115	46,058	17,888	577
February, 1927	25,024	894	416	15	3,544	127	49,714	18,240	651
February, 1926	21,259	759	408	15	3,245	116	44,132	15,814	565
Kerosene:									
December, 1926	5,399	174	.....	...	1,847	60	8,575	3,037	98
January, 1927	5,113	165	.....	...	1,616	52	8,190	3,882	125
February, 1927	4,453	159	1	...	1,399	50	8,855	2,590	93
February, 1926	4,746	170	1	...	1,577	56	6,855	3,166	113
Lubricants:									
December, 1926	2,699	87	1	...	917	30	7,576	1,827	59
January, 1927	2,570	83	81	2	864	28	7,867	1,496	48
February, 1927	2,345	84	.....	...	620	22	8,361	1,231	44
February, 1926	2,448	87	1	...	789	28	7,910	1,294	46
Wax (thousands of lbs.):									
December, 1926	55,950	1,805	1,189	38	28,410	916	185,331	20,452	660
January, 1927	54,114	1,746	460	15	29,228	943	192,835	17,842	576
February, 1927	47,363	1,692	2,048	73	23,623	844	198,452	20,171	720
February, 1926	50,307	1,797	668	24	28,709	1,025	123,964	21,075	753
Gas and fuel oils:									
December, 1926	33,376	1,077	764	25	3,830	124	†24,898	.....	...
January, 1927	32,936	1,062	660	21	3,732	120	†23,195	.....	...
February, 1927	30,185	1,078	1,053	38	3,812	136	†22,099	.....	...
February, 1926	27,094	968	1,585	57	3,190	114	†21,445	.....	...

*From Bureau of Foreign and Domestic Commerce—subject to revision. Exports, except for wax, include shipments to Alaska, Hawaii, and Porto Rico.
†These stocks total for east of California only.

RUNS TO STILLS AND OUTPUT OF REFINERIES IN THE UNITED STATES, FEBRUARY, 1927

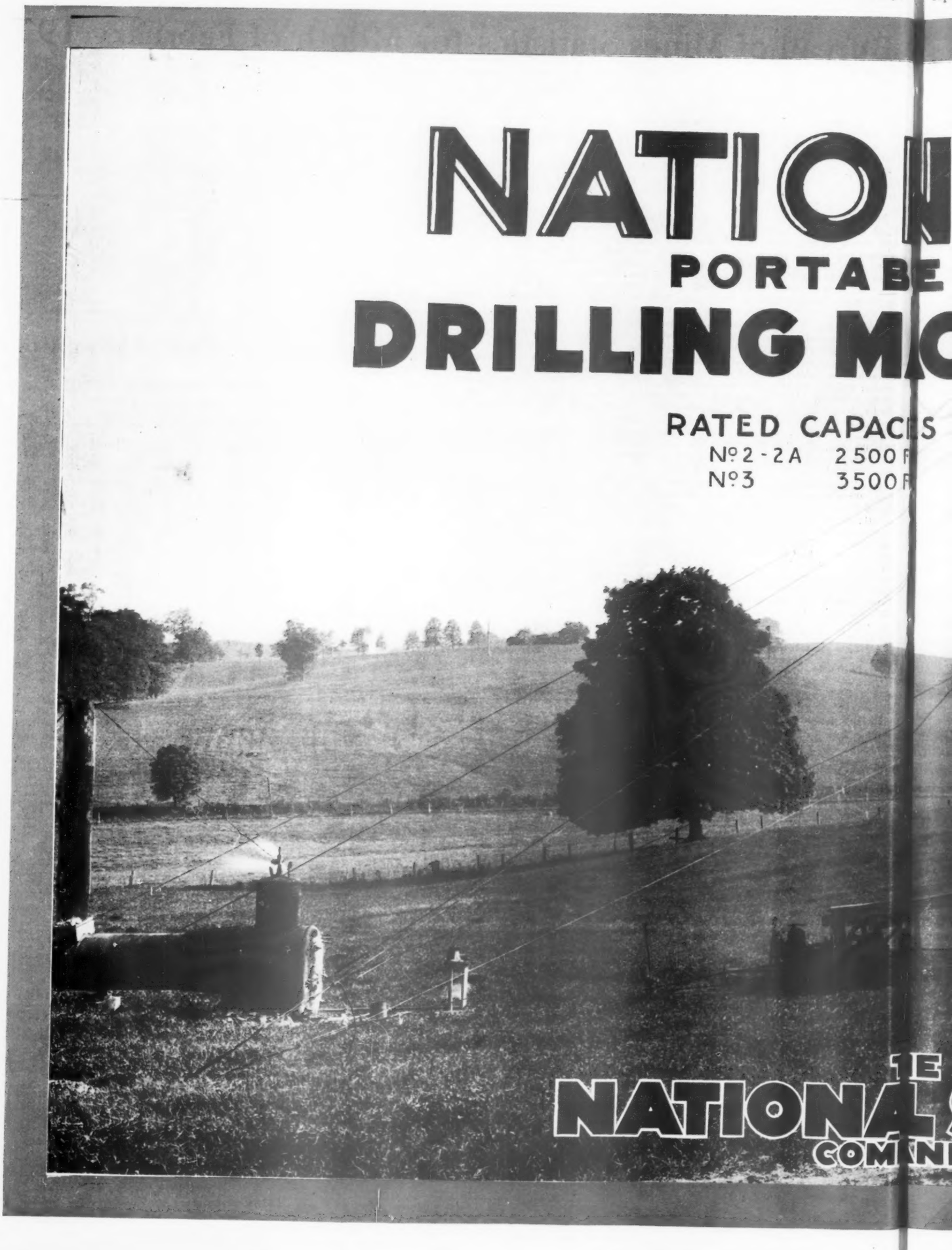
Oils run to stills (bbls.):	Crude Oil—Domestic	Crude Oil—Foreign	Unfinished Oils	Nat.-Gas Gasoline	Total Oils Run to Stills
East Coast	7,877,000	2,326,000	976,000	377,000	11,556,000
Appalachian	2,278,000	.....	79,000	77,000	2,434,000
Indiana, Illinois, etc.	5,096,000	.....	321,000	121,000	5,538,000
Oklahoma, Kansas, etc.	7,655,000	.....	323,000	309,000	8,287,000
Texas	12,875,000	58,000	784,000	413,000	14,130,000
Louisiana and Arkansas	5,176,000	765,000	93,000	353,000	6,387,000
Rocky Mountain	2,278,000	.....	542,000	73,000	2,893,000
California	16,967,000	.....	*323,000	437,000	17,727,000
Total U. S.	60,202,000	3,149,000	3,441,000	2,160,000	68,952,000
Daily average 2/27	2,150,100	112,500	122,900	77,100	2,462,600
Daily average 1/27	2,138,600	117,800	111,800	72,600	2,440,800
Texas Gulf Coast	10,001,000	58,000	702,000	357,000	11,118,000
Louisiana Gulf Coast	3,458,000	765,000	46,000	286,000	4,555,000

Output and losses:	Gasoline (Bbls.)	Kerosene (Bbls.)	Gas & Fuel Oils (Bbls.)	Lubricants (Bbls.)	Wax (Lbs.)
East Coast	4,013,000	742,000	4,994,000	723,000	19,005,000
Appalachian	994,000	303,000	528,000	344,000	7,048,000
Indiana, Illinois, etc.	2,841,000	362,000	1,438,000	223,000	5,249,000
Oklahoma, Kansas, etc.	4,170,000	702,000	2,441,000	176,000	3,599,000
Texas	5,330,000	1,112,000	5,787,000	635,000	5,023,000
Louisiana and Arkansas	1,801,000	594,000	2,845,000	47,000	4,672,000
Rocky Mountain	1,293,000	123,000	538,000	40,000	2,767,000
California	4,582,000	605,000	11,614,000	157,000	.....
Total U. S.	25,024,000	4,453,000	30,185,000	2,345,000	47,363,000
Daily average 2/27	893,700	159,000	1,078,000	83,700	1,691,500
Daily average 1/27	901,900	164,900	1,062,500	82,900	1,745,800
Texas Gulf Coast	4,196,000	893,000	4,512,000	607,000	4,731,000
Louisiana Gulf Coast	1,409,000	457,000	1,657,000	47,000	4,672,000

Output and losses (continued):	Coke (Tons)	Asphalt (Tons)	Other Fin. Prod. (Bbls.)	Unfinished Prod. (Bbls.)	Losses (Bbls.)
East Coast	14,334	79,545	34,000	19,000	455,000
Appalachian	1,629	.....	25,000	78,000	127,000
Indiana, Illinois, etc.	20,925	20,463	94,000	156,000	181,000
Oklahoma, Kansas, etc.	19,794	762	53,000	225,000	392,000
Texas	12,824	12,669	29,000	618,000	479,000
Louisiana and Arkansas	11,656	26,489	114,000	713,000	143,000
Rocky Mountain	6,930	331	64,000	753,000	25,000
California	.....	32,426	133,000	*167,000	289,000
Total U. S.	88,102	172,685	546,000	2,729,000	2,091,000
Daily average 2/27	3,146	6,167	19,500	97,500	74,700
Daily average 1/27	2,997	6,167	16,500	79,800	76,400
Texas Gulf Coast	10,464	12,669	1,000	379,000	402,000
Louisiana Gulf Coast	9,754	24,858	105,000	598,000	82,000

*Includes 25,000 bbls. net tops produced.

(Continued on Page 98)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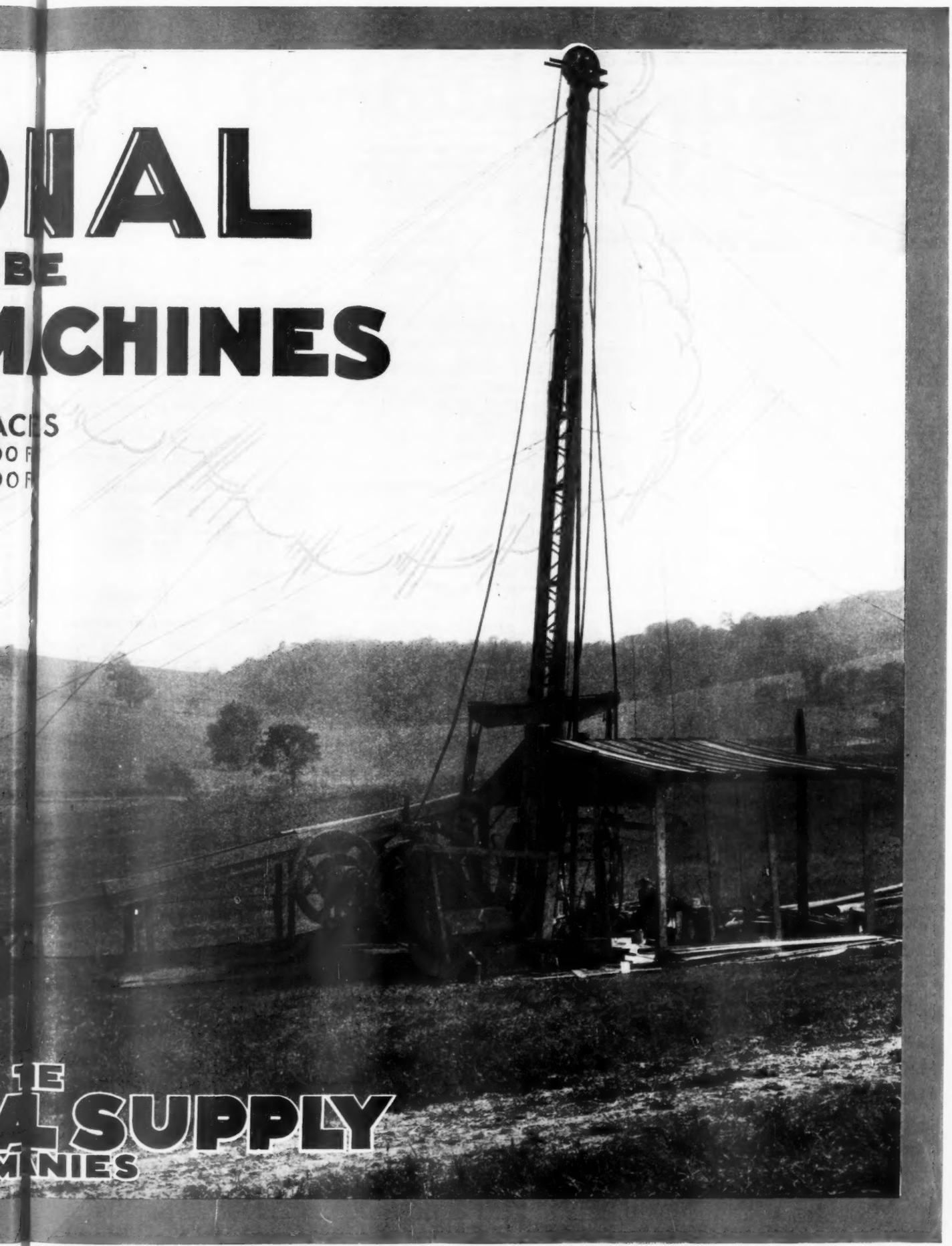
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BUREAU OF MINES STATISTICS FOR FEBRUARY

(Continued from Page 95)

GASOLINE PRODUCTION BY THE VARIOUS METHODS—FEBRUARY, 1927
(Barrels)

	Straight Run	Pct.	Cracked	Pct.	Natural-Gas Gasoline	Pct.	Total
East Coast	2,043,000	51	1,593,000	40	377,000	9	4,013,000
Appalachian	681,000	68	236,000	24	77,000	8	994,000
Indiana, Illinois, etc.	1,441,000	51	1,279,000	45	121,000	4	2,841,000
Oklahoma, Kansas, etc.	2,542,000	61	1,315,000	32	309,000	7	4,170,000
Texas	2,806,000	53	2,111,000	39	413,000	8	5,330,000
Louisiana and Arkansas	870,000	48	578,000	32	353,000	20	1,801,000
Rocky Mountain	667,000	51	553,000	43	73,000	6	1,293,000
California	3,520,000	77	310,000	7	*752,000	16	4,582,000
Total United States	14,570,000	58	7,979,000	32	2,475,000	10	25,024,000
Total United States 1/27 †	16,491,000	59	8,874,000	32	2,595,000	9	27,960,000
Gulf Coast	2,627,000	47	2,335,000	42	643,000	11	5,605,000

*Includes natural-gas gasoline run through pipe lines.
†Revised on basis of note *.

STOCKS HELD BY THE REFINING COMPANIES IN THE UNITED STATES, FEBRUARY, 1927

	Gasoline (Bbls.)	Kerosene (Bbls.)	Gas and Fuel Oils (Bbls.)	Lubricants (Bbls.)
East Coast	9,469,000	1,445,000	5,821,000	2,913,000
Appalachian	1,291,000	264,000	800,000	1,028,000
Indiana, Illinois, etc.	5,682,000	940,000	908,000	798,000
Oklahoma, Kansas, etc.	4,338,000	661,000	4,167,000	484,000
Texas	7,215,000	1,830,000	7,379,000	1,938,000
Louisiana and Arkansas	3,849,000	1,184,000	2,234,000	131,000
Rocky Mountain	4,767,000	442,000	790,000	161,000
California	13,103,000	1,889,000	.....	908,000
Total United States	49,714,000	8,655,000	*23,099,000	8,361,000
Total United States 1/31/27	46,058,000	8,190,000	*23,195,000	7,887,000
Texas Gulf Coast	6,446,000	1,354,000	6,182,000	1,899,000
Louisiana Gulf Coast	3,719,000	1,144,000	1,659,000	131,000

	Wax (Lbs.)	Coke (Tons)	Asphalt (Tons)	Other Fin. Prod. (Bbls.)	Unfinished Oils (Bbls.)
East Coast	90,371,000	15,101	90,819	139,000	5,552,000
Appalachian	21,723,000	407	7	93,000	1,117,000
Indiana, Illinois, etc.	25,845,000	21,150	41,373	359,000	3,321,000
Oklahoma, Kansas, etc.	8,048,000	39,540	1,205	243,000	2,929,000
Texas	16,040,000	81,256	10,071	10,000	9,471,000
Louisiana and Arkansas	26,842,000	62,753	33,704	54,000	2,942,000
Rocky Mountain	9,465,000	74,475	7,494	20,000	2,088,000
California	118,000	.....	49,877	364,000	†11,556,000
Total United States	198,452,000	294,682	234,450	1,282,000	38,986,000
Total Unites States 1/31/27	192,835,000	287,394	215,337	1,189,000	‡39,287,000
Texas Gulf Coast	15,973,000	76,020	10,071	5,000	8,764,000
Louisiana Gulf Coast	26,842,000	59,255	32,040	51,000	2,611,000

*East of California. †Includes 3,627,000 bbls. tops in storage. ‡Revised by addition of 336,000 bbls. in California.

NATURAL-GAS GASOLINE, FEBRUARY, 1927

No let-down in the natural-gas gasoline industry was apparent in February, 1927, when a new record for daily average production of 4,400,000 gallons was established. This represents an increase over the previous month of 140,000 gallons per day or 3 per cent. Texas was again in the foreground from the standpoint of increased natural-gas gasoline production. Stocks of natural-gas gasoline at the plants increased roughly 2,500,000 gallons during the month and on February 28, 1927, amounted to 25,986,000 gallons.

(Thousands of Gallons)

	Natural-gas Gasoline Prod. (net) Jan., 1927	Feb., 1927	Feb., 1926	Stks end Mo. Jan., 1927	Feb., 1927	Blended Motor Fuel Feb., 1927 Natl. gas-gaso. used	Naph. other oils used	Stks. end mo.
Appalachian	11,200	9,900	10,100	3,376	3,027	333	309	276
Ind., Ill., etc.	1,700	1,500	1,700	352	429	73	30	14
Okla., Kans., etc.	*43,600	41,700	36,700	*11,422	12,674	1,447	2,781	918
Texas	*24,700	23,900	16,300	*6,036	6,157	253	398	189
La. and Ark.	6,900	6,400	5,500	1,421	1,649	123	163	99
Rocky Mountain	3,700	3,500	2,600	514	473	51	106	†96
Total east of Calif.	91,800	86,900	72,900	22,121	24,409	2,279	3,787	‡1,592
California	40,300	36,300	27,100	1,395	1,577	Not Available		5
Total U. S.	132,100	123,200	100,000	23,516	25,986	....	....	‡1,597
Daily average	4,260	4,400	3,571	.....	.....	....	....	....

*Revised. Revised figures for January, 1927. †92. ‡1,392. §1,395.

The indicated output of motor fuel from the above and other sources may be expressed by the following table:

(Thousands of gallons)

	Jan., 1927	Feb., 1927	Feb., 1926
Total gasoline produced at refneries *, †	1,174,300	1,051,000	892,900
Raw gasoline blended at plants east of California	2,600	2,300	1,900
Raw gasoline sold direct to jobbers (estimated)	800	800	800
Benzol production ‡	9,100	8,400	7,000
Total motor fuel produced	1,186,800	1,062,500	902,600
*Includes natural-gas gasoline blended at refineries	94,500	90,700	79,600
†Includes natl.-gas gaso. run through refg. pipe lines in Calif.	14,500	13,200	9,600

‡Estimated with production of by-product coke as a basis.

STOCKS OF CRUDE PETROLEUM HELD IN THE UNITED STATES

AT REFINERIES (and in coastwise transit thereto)- Reported by location of storage;		Jan. 31, 1927*	Feb. 28 1927	Feb. 28 1926
East coast: Domestic		7,315,000	7,585,000	6,397,000
Foreign		2,164,000	2,604,000	2,473,000
Appalachian		1,597,000	1,606,000	1,579,000
Indian, Illinois, etc.		2,284,000	2,491,000	1,482,000
Oklahoma, Kansas, etc		3,135,000	3,551,000	3,607,000
Texas: Inland		1,094,000	1,120,000	1,114,000
Gulf coast: Domestic		8,133,000	8,305,000	6,176,000
Foreign		152,000	237,000	144,000
Arkansas and Inland Louisiana		553,000	560,000	546,000
Louisiana Gulf: Domestic		6,787,000	7,179,000	3,953,000
Foreign		722,000	967,000	1,531,000
Rocky Mountain		1,608,000	1,504,000	1,521,000
TOTAL east of California		35,544,000	37,709,000	30,523,000
ELSEWHERE THAN AT REFINERIES: Domestic — Reported by field of origin:				
Appalachian: N. Y., Pa., W. Va., Eastern and	Gross	6,603,000	6,675,000	7,055,000
Central Ohio:	Net	6,319,000	6,391,000	6,755,000
Kentucky:	Gross	1,243,000	1,253,000	1,897,000
	Net	1,116,000	1,128,000	1,790,000
Lima-Indiana:	Gross	879,000	877,000	1,107,000
	Net	667,000	666,000	905,000
Illinois-S. W. Indiana:	Gross	12,372,000	12,293,000	11,480,000
	Net	11,887,000	11,808,000	11,001,000
Mid-Continent: Oklahoma; Kansas; Central,	Gross	159,760,000	165,575,000	158,782,000
North, and West Texas:	Net	147,209,000	153,248,000	146,475,000
Northern Louisiana and	Gross	32,725,000	31,509,000	45,486,000
Arkansas:	Net	30,089,000	29,011,000	43,163,000
Gulf Coast	Gross	18,481,000	18,057,000	17,905,000
	Net	18,156,000	17,703,000	17,506,000
Rocky Mountain:	Gross	27,526,000	27,334,000	29,456,000
	Net	27,474,000	27,236,000	29,414,000
TOTAL pipe-line and tank-farm stocks east of California:	Gross	259,589,000	263,573,000	273,168,000
	Net	242,917,000	247,191,000	257,009,000
Foreign crude petroleum on Atlantic coast		84,000	108,000	124,000
Foreign crude petroleum on Gulf coast		427,000	450,000	408,000
TOTAL refinery, pipe-line, and tank-farm stocks of domestic and foreign crude petroleum east of California		278,972,000	285,458,000	288,064,000
CLASSIFICATION BY GRAVITY (approx): East of California:				
Light crude (24° and above)		230,013,000	236,872,000	229,984,000
Heavy crude (below 24°)		48,959,000	48,586,000	58,080,000
California: Light		31,017,000	29,770,000	44,871,000
Heavy (including fuel)		87,971,000	87,640,000	86,744,000

*Revised

IMPORTS AND EXPORTS OF CRUDE PETROLEUM (BARRELS)
(From Bureau of Foreign & Domestic Commerce)

	January 1927 Total	Daily av.	February 1927 Total	Daily av.	Jan.-Feb., 1927	Jan.-Feb. 1926
Imports:	4,514,000	145,600	4,181,000	149,300	8,695,000	8,131,000
From Mexico	2,040,000	65,800	1,771,000	63,200	3,811,000	6,379,000
From Venezuela	1,320,000	42,600	1,752,000	62,600	3,072,000	1,499,000
From Colombia	839,000	27,100	582,000	20,900	1,424,000	.....
From other countries	315,000	10,100	73,000	2,600	388,000	553,000
Exports:	1,204,000	38,800	1,165,000	41,600	2,369,000	2,232,000
Domestic crude oil: To Canada	968,000	31,200	884,000	31,600	1,852,000	1,838,000
To other countries	236,000	7,600	281,000	10,000	517,000	394,000

Note:—No shipments to territories during February.

INDICATED DELIVERIES OF CRUDE PETROLEUM, EXCLUSIVE OF CALIFORNIA GRADES, TO DOMESTIC CONSUMERS (BARRELS)

Domestic petroleum by fields of origin:	January 1927 Total	Daily av.	February 1927 Total	Daily av.	Jan.-Feb., 1927	Jan.-Feb. 1926
Appalachian	2,675,000	86,300	2,243,000	80,100	4,918,000	4,234,000
Lima-Indiana	139,000	4,500	157,000	5,600	296,000	381,000
Michigan	29,000	900	29,000	1,000	58,000	4,000
Ill. & S. W. Ind.	525,000	16,900	694,000	24,800	1,219,000	925,000
Mid-Continent	37,203,000	1,200,100	35,266,000	1,259,500	72,469,000	67,062,000
Gulf coast	6,641,000	214,200	4,605,000	164,500	11,246,000	7,083,000
Rocky Mountain	3,154,000	101,800	2,623,000	93,700	5,777,000	5,551,000
Deliveries and exports	50,366,000	1,624,700	45,617,000	1,629,200	95,983,000	85,240,000
Deliveries	49,508,000	1,597,000	44,938,000	1,604,900	94,446,000	83,501,000
Foreign petroleum	4,612,000	148,800	4,134,000	147,700	8,746,000	8,306,000
Deliveries of domestic and foreign petroleum	54,120,000	1,745,800	49,072,000	1,752,600	103,192,000	91,807,000

* Revised.

NUMBER OF PRODUCING OIL WELLS COMPLETED*

January, 1927	February, 1927	Jan.-Feb. 1927	Jan.-Feb. 1926
1,385	1,342	2,727	2,294

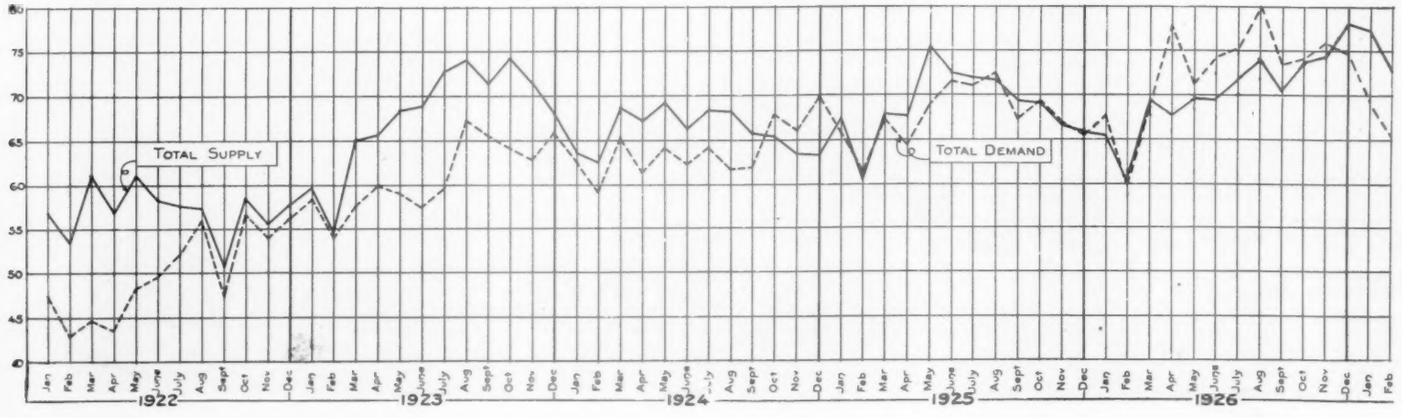
*For States east of California, from The Oil and Gas Journal; for California, from the American Petroleum Institute.

SHIPMENTS OF CALIFORNIA OIL THROUGH PANAMA CANAL TO EASTERN PORTS IN UNITED STATES (BARRELS)

	Jan., 1927	Feb. 1927	Jan.-Feb., 1927	Jan.-Feb. 1926
Crude oil	†389,000	831,000	1,220,000	2,349,000
Refined products:	2,321,000	2,497,000	4,818,000	2,531,000
Gasoline	749,000	1,101,000	1,850,000	1,230,000
Gas oil	499,000	299,000	728,000	534,000
Fuel oil	1,072,000	1,167,000	2,239,000	467,000
Lubricants	1,000	.....	1,000	138,000

*From Panama Canal Record. †Incorrectly recorded in January report.

Crude Oil Supply (production plus imports) and demand (domestic consumption plus exports). Data on demand include California fuel oil starting January 1, 1925 (millions of barrels).



The G-R Bentube Section

AN atmospheric cooler that automatically cracks off the scale formed on the outside of the tubes by the pronounced bowing of the tubes on change in temperature whenever steam or vapor is admitted to the section.

This scale-shedding action keeps the scale from building up to a thickness that will reduce the heat transfer rates below those for which the cooler is designed.

These sections are standard and interchangeable, provide for expansion, drainage and easy cleaning, are easily moved to new locations, and can be added to as desired for increase in capacity or greater cooling effect.

The many advantages of the G-R Bentube Section—its exclusive scale-shedding feature, interchangeability, long life, flexible capacity and high salvage value, make it well worth your further investigation.

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Philadelphia	Chicago	St. Louis	San Francisco
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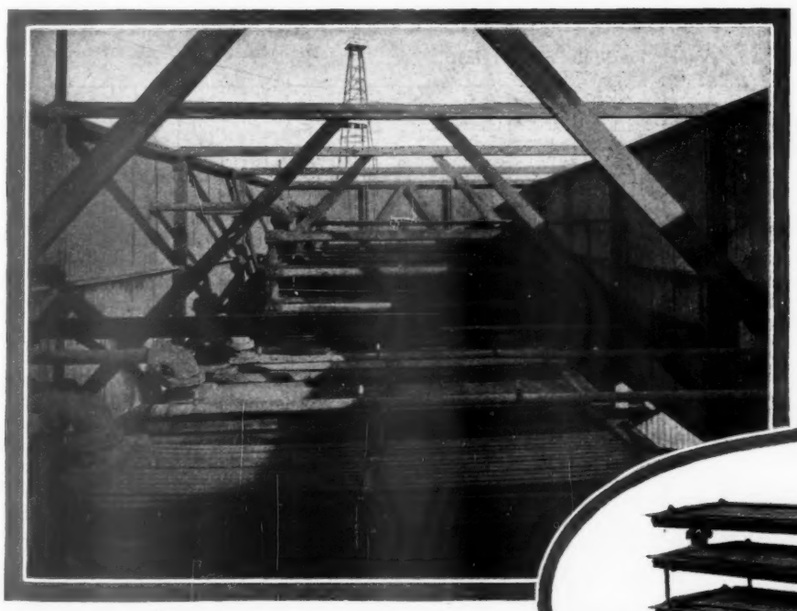
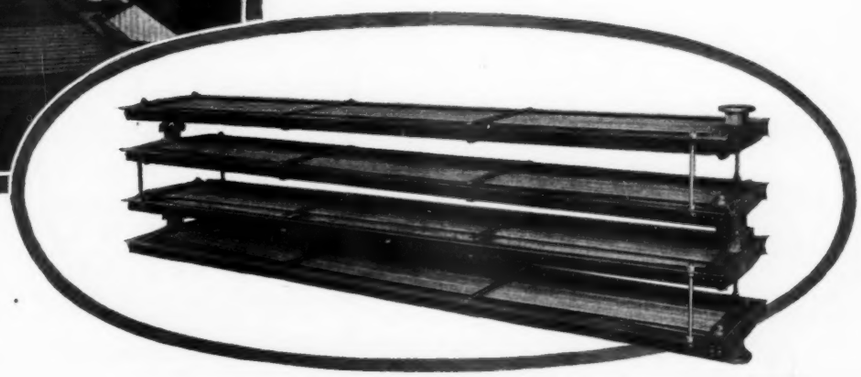
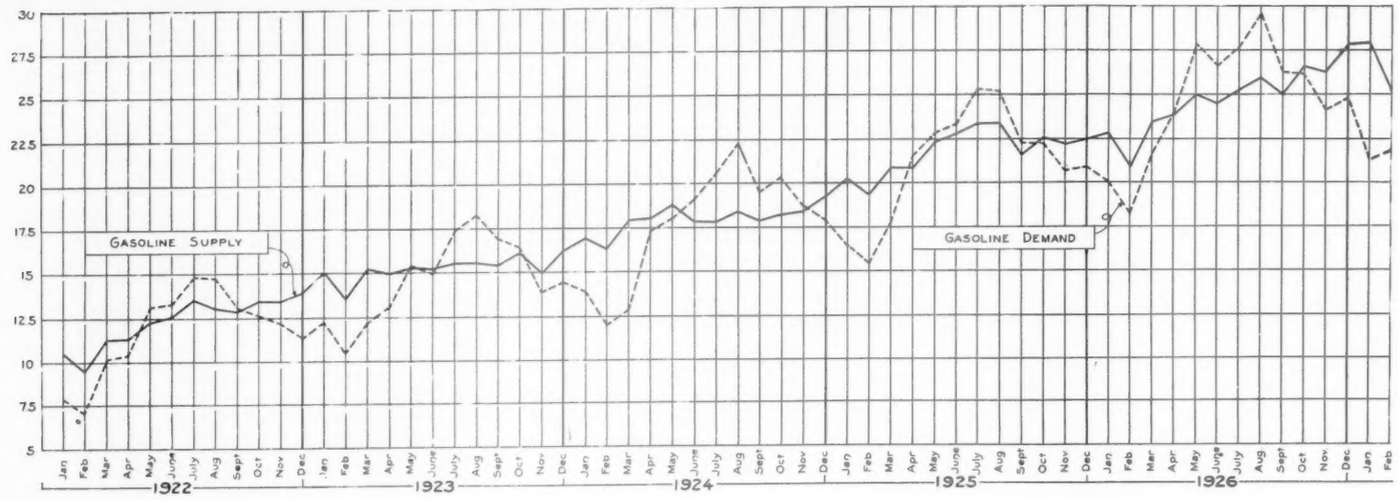
Griscom-Russell
Heat Transfer Apparatus



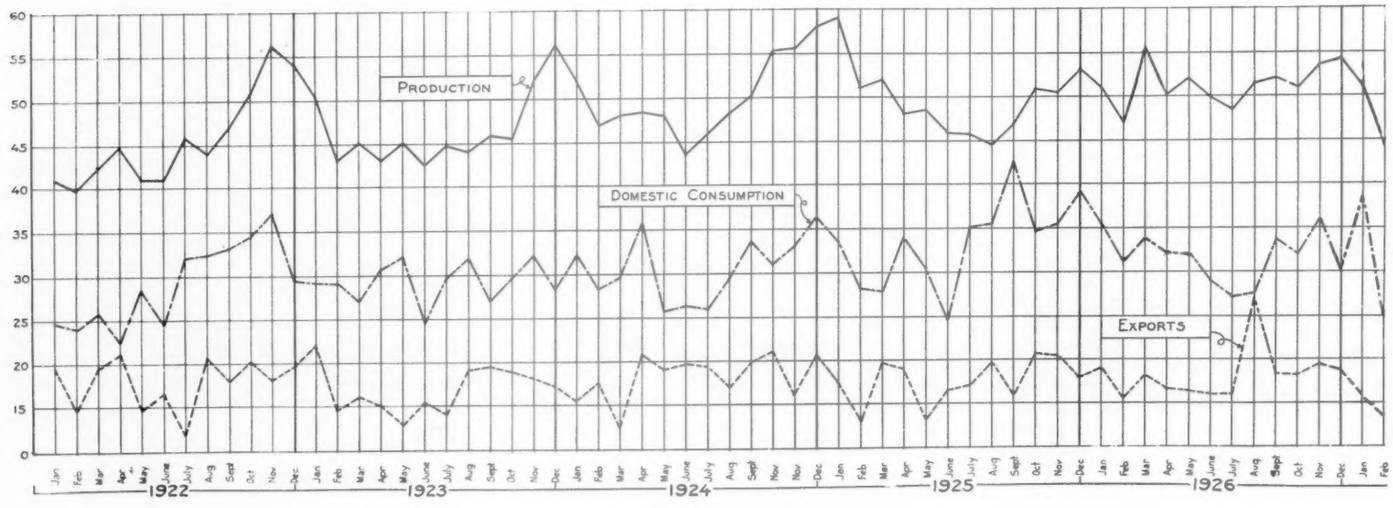
Typical Installation of G-R Bentube Section.



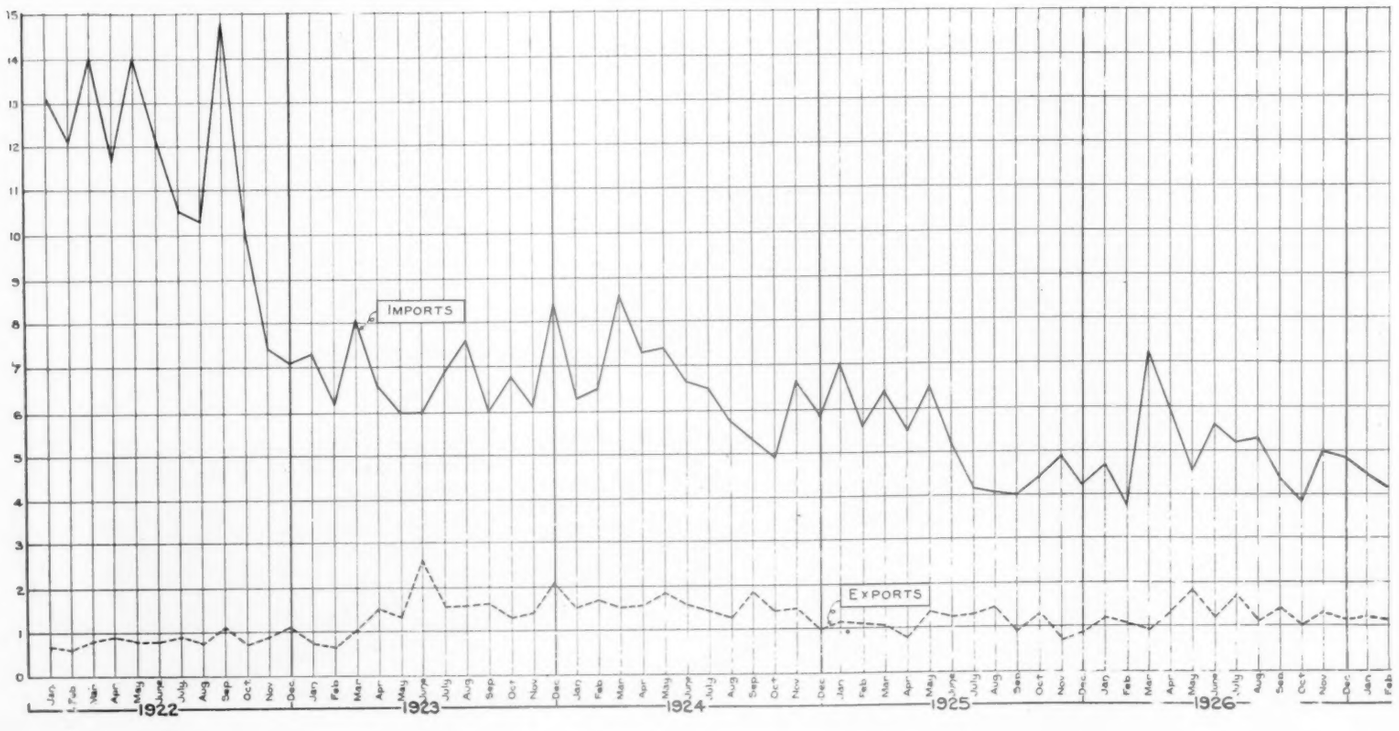
Gasoline supply (production plus imports) and demand (domestic demand plus exports) (millions of barrels).



Kerosene production, domestic consumption and exports (hundreds of thousands of barrels)



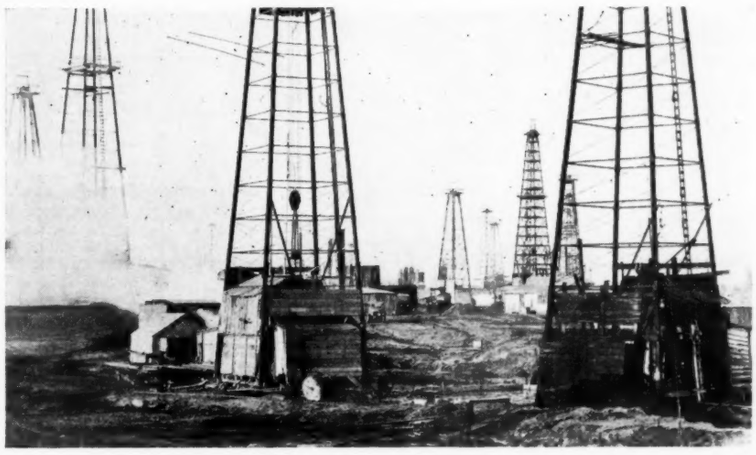
Crude oil imports and exports (millions of barrels).



The LARGEST ITEM in operating COST

Drilling Oil Wells is the largest single item in operating costs—buy equipment wisely and well

SEND for BOOKLET



5,000 more wells will be drilled in 1927 than were drilled during the past year—and practically every well will be a DEEPER AND COSTLIER WELL, needing MORE equipment per well. *Proved Equipment Only*, is the order going out from the largest producing companies to their purchasing departments. Read what most producing companies have done concerning the running and pulling of casing in their wells.

The Oil and Gas Journal, under date of February 10th, estimates that at least 5,000 more wells will be drilled in 1927 than were drilled last year. And in keeping with the general trend, the 1927 wells will be DEEPER WELLS—and COSTLIER WELLS.

There will be more casing needed for drilling purposes, PER WELL, than was used last year, representing more investment, and GREATER HAZARDS, than the shallower wells of yesterday. To drilling contractors and producing companies who will have a part in this enormous 1927 program, we offer a suggestion which will prove of value in their operations, and which, if followed, should materially reduce operating costs in at least two particulars.

THE BOVAIRD GRIP CASING ELEVATOR has proved its worth to practically every large producing company, and many of the smaller ones, in the Mid-Continent fields during the past 4 years. In hundreds of instances it has demonstrated its superiority over other types of casing elevators, to such an extent that most of the companies who use it have issued orders to the effect that no casing, 10" or smaller, shall be run or pulled on any of their wells without a BOVAIRD GRIP CASING ELEVATOR and a BOVAIRD GRIP CASING SPIDER.

To those contractors and producers who have already used this modern elevator in the past, we need only say that it will perform as satisfactorily in the deeper wells of today as it did in the shallower wells of several years ago; but to those who have not experienced the satisfaction of speed and safety in running and pulling casing with the BOVAIRD CASING ELEVATOR AND SPIDER, we suggest that you fill out the coupon below and mail to us for a copy of our new booklet describing these two casing INSURANCE POLICIES, and our BOVAIRD GRIP TUBING SPIDER. The leading supply stores throughout the country sell this leading equipment.

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WRITE YOUR NAME AND ADDRESS HERE

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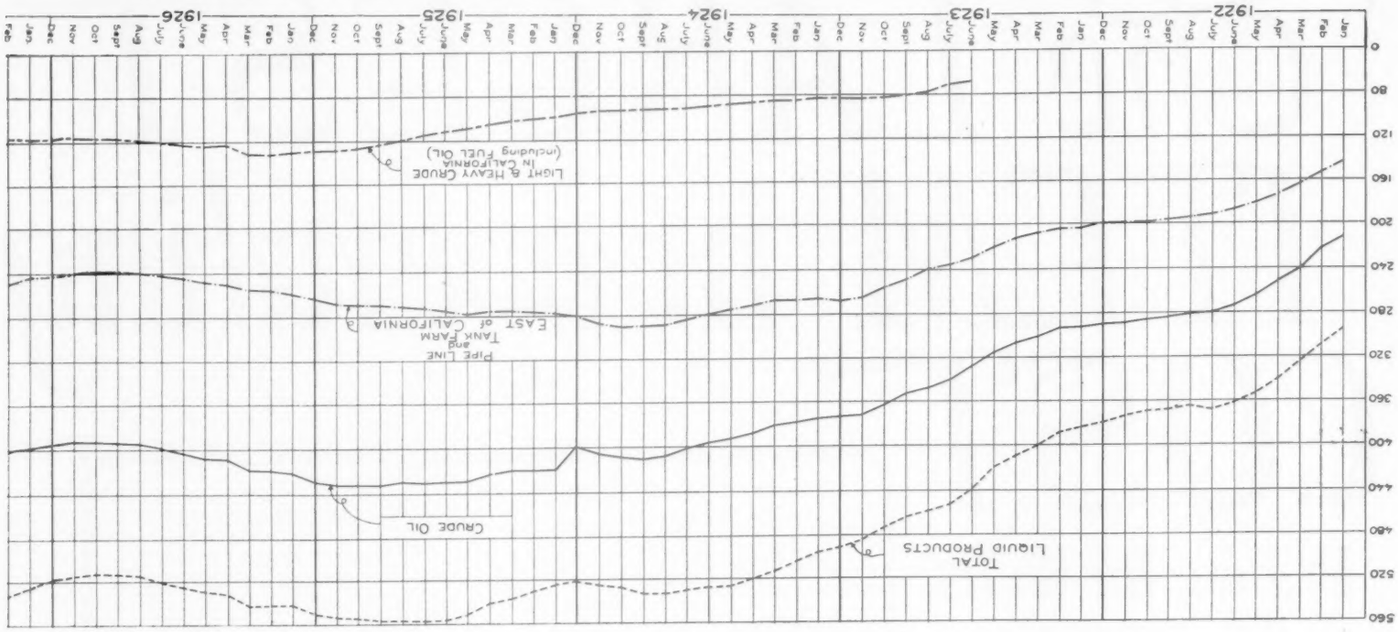
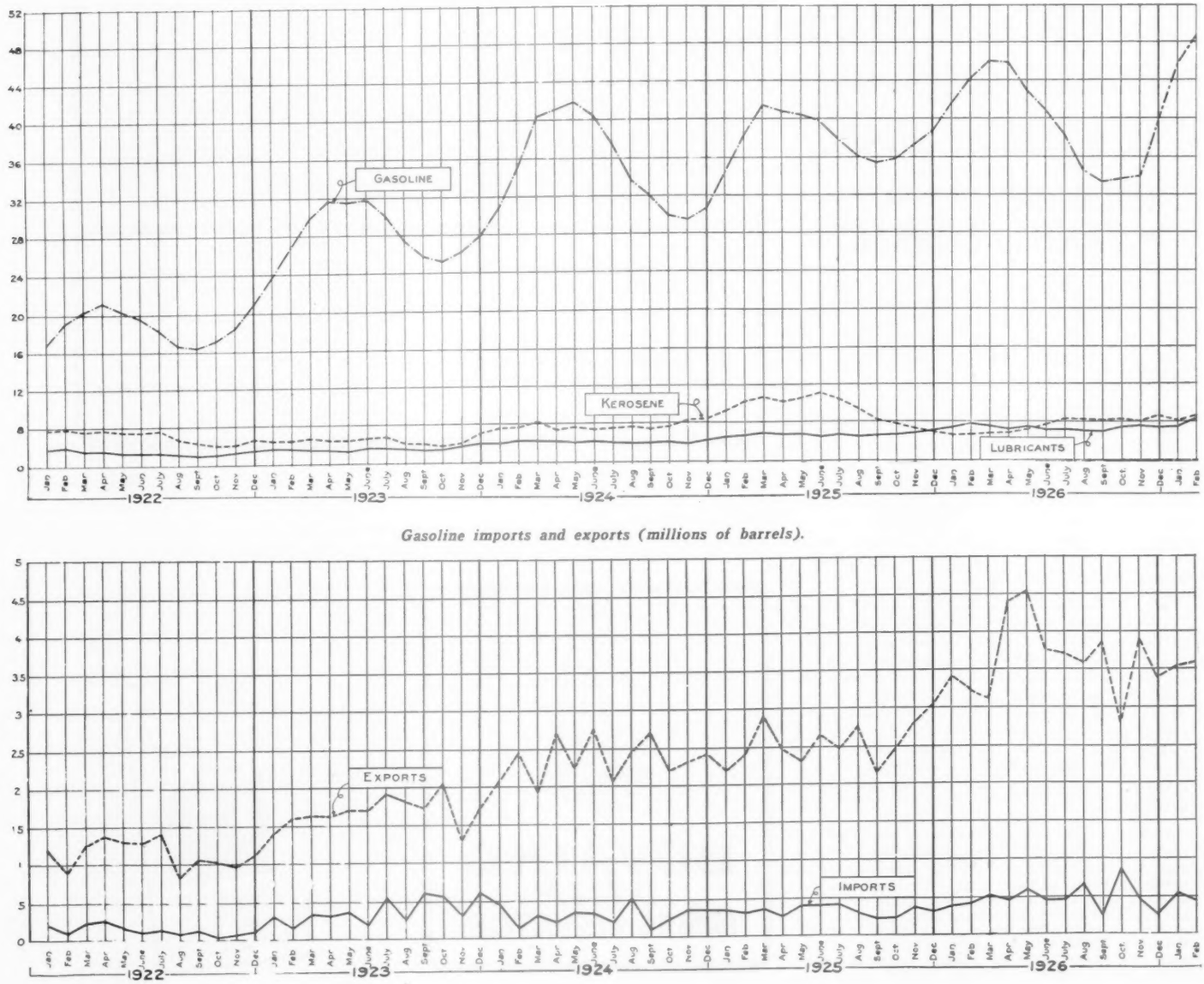
_____

_____

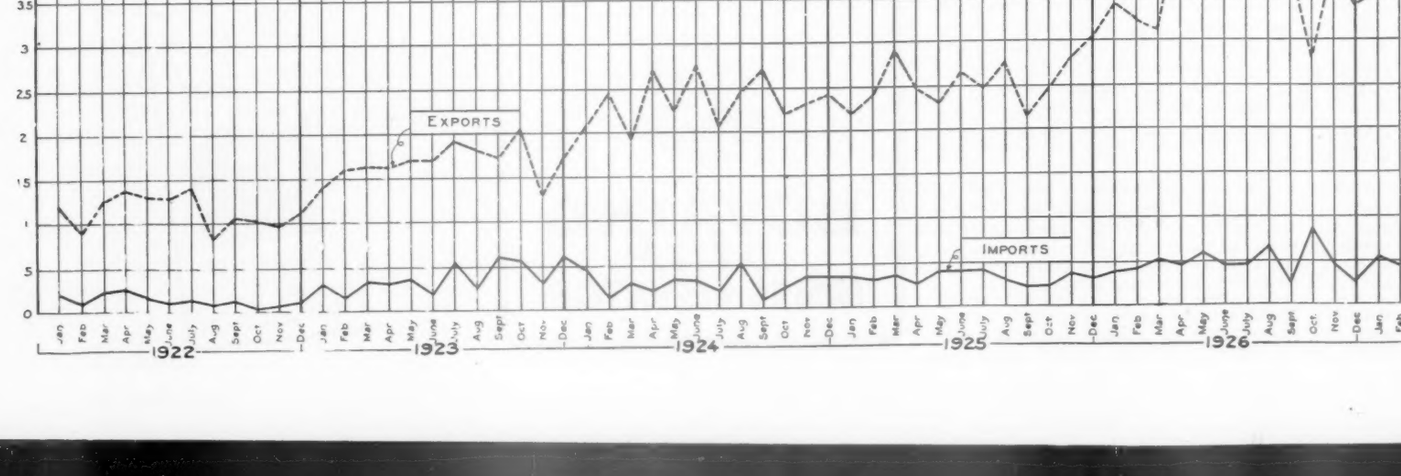
Crude Oil Stocks. Total liquid stocks consists of all crude and refined stocks reduced to barrels (millions of barrels).



Gasoline, kerosene and lubricating oil stocks (millions of barrels).



Gasoline imports and exports (millions of barrels).



NAVAL OIL RESERVE IN ALASKA AWAITS FUNDS FOR DRILLING TESTS

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 2.—Congress is face to face with an important problem involving an emergency supply of oil for the Navy. Naval Reserve No. 4 was set aside in February, 1923, by an executive order after oil seepages had been observed by geologists in the northern portion of Alaska. At that time there had been so much development in and around the other naval oil reserves as to make it questionable whether there could really be protection from drainage for a long period of years, and after the ordinary supplies of petroleum upon which the Navy can depend have become depleted.

So it happened that when these oil seepages were discovered in the inaccessible northern portion of Alaska, it was seen that so far as absolute safety was concerned nothing could be more desirable than an oil reserve in this location. Since that action was taken there have been four expeditions of geologists of the Government to look over his vast area of which point Barrow is the northernmost extremity of the 35,000 square miles set aside for this purpose. It undoubtedly has the distinction of being the most inaccessible prospective oil field in the world.

More Knowledge Needed

The important fact concerning this naval oil reserve is that it is of no possible use so long as nothing more is known of its oil content than is within the knowledge of Government officials at this time. The geologic structure gives indication of possible oil and seepages show that oil does exist in that region. However, when it comes to making any broad estimate of the potential oil content of this northern Alaskan field no one feels qualified to make even a rough guess. There are many conditions that may exist under the surface that the surface structure itself does not definitely determine. It is important, however, for the Government to know that these surface conditions do indicate the possibility of a vast oil deposit which can be determined only by the drilling of test wells. This is the stage of development that calls for money and at this time there seems to be no definite policy for future action.

Not only is the question of the quantity of oil that exists there shrouded in mystery but the very nature of the oil itself cannot be ascertained without drilling operations. As is well known, seepage oil long exposed to changes by coming in contact with the atmosphere is no criterion upon which to base judgment respecting the oil in the ground. Analyses that have been made show a gravity test of this seepage oil of 18.6 degrees. As the Navy would chiefly need fuel oil for its purposes, the product to be found in this naval reserve, even accepting the quality shown by the seepages, would answer the chief purposes desired. Doubtless, however, this oil contains a large quantity of gasoline and naphtha that is not indicated by this gravity test.

Valuable for Air Travel

It may appear to be visionary and as looking too far in the future to suggest that with the development of aviation a native supply of gasoline at this farthest north point might be of inestimable service either in times of peace or in emergencies when the national defense is to be cared for. Yet a study of the map easily shows that with the additional interest that is being taken in the development of the northern longitudes this view may not be as visionary 20 years hence as it appears to be today. So far as the air route is concerned between the United States and Siberia, northern Alaska might easily become a desirable stopping point.

The last expedition to Alaska undertaken by the United States Geological Survey in behalf of the Navy was headed by Phillip S. Smith and Gerald Fitzgerald was the topographer. Mr. Fitzgerald had been engaged on that northern work on all expeditions since the first trip in the interest of the naval oil reserve of 1923 and in 1925 he was in charge of the party.

Mr. Smith was on the expedition of 1924 and as stated he was in charge of the party last year. He has been connected with Alaskan work since 1906.

The enormous extent of the northernmost reserve is realized when its area is compared with the area of the state of Massachusetts. Its 35,000 square miles is just about four and one-half times the area of Massachusetts but the explorations that have been made in connection with it have covered a surface something like 50,000 square miles.

Perplexing Features

There are many perplexing features of any general plan for the development of this reserve in addition to the actual presence of oil in paying quantities. It is realized that only a most prolific oil field, something comparable to what the Teapot Dome was supposed to be could possibly make the development of this oil reserve successful as a commercial project. Perhaps the most important feature of this kind relates to transportation. The season for navigation up to the northernmost part of Alaska lasts only from six to eight weeks and the opportunities for getting in and out of the Arctic are considerably controlled by the floes of ice. Such navigation is hazardous. Even if these port facilities were not so difficult, the work of building pipelines or a railroad to connect the oil field with the northern coast would be almost comparable, in amount of money to be expended, to the cost of building a narrow-gauge road from this field to connect with the Government railroad which has been built for a distance of 450 miles into the interior of Alaska connecting with a southern port on the Alaskan coast. The extension of such railroad through the oil field would mean still more mileage than that which has been built. The Alaskan railroad has cost from $50,000,000 to $60,000,000 for its 450 miles of trackage.

No reliable details have been worked out showing the cost of making this Naval Oil Resrve No. 4 accessible to a point of shipment, but enough is known of the project to satisfy anyone that there is small probability that the work can be done on a commercial basis of investment. But while these disadvantages seem discouraging the very isolation that involves them also makes this prospective oil field the safest oil structure within the domains of the United States so far as outside interference of any kind is concerned.

In this locality the mean annual temperature is 10 degrees above zero, and at times the mercury is down to 60 degrees below zero. During the summer the temperature has been at times up to 70 or 80 degrees. However, the season when an oil well could be operated probably would not last longer than two months during the year.

No Plan in Prospect

There is no plan in prospect at present for further exploration of this region in the interests of oil discovery, but enough is known of the geologic structure to indicate the desirability of putting down test wells. If the same conditions existed in a more accessible region there would be no question about pursuing this course. All of these facts combined place a problem in the hands of the Navy Department which doubtless will have very full consideration.

Incidentally, this same region contains much coal. It is bituminous and of very fair quality. It is found in beds up to 20 feet in thickness and covers an area of many thousand square miles.

Some of the reindeer stations that have had much attention during the last few years are located within this reserve and along the northern coast. Recently

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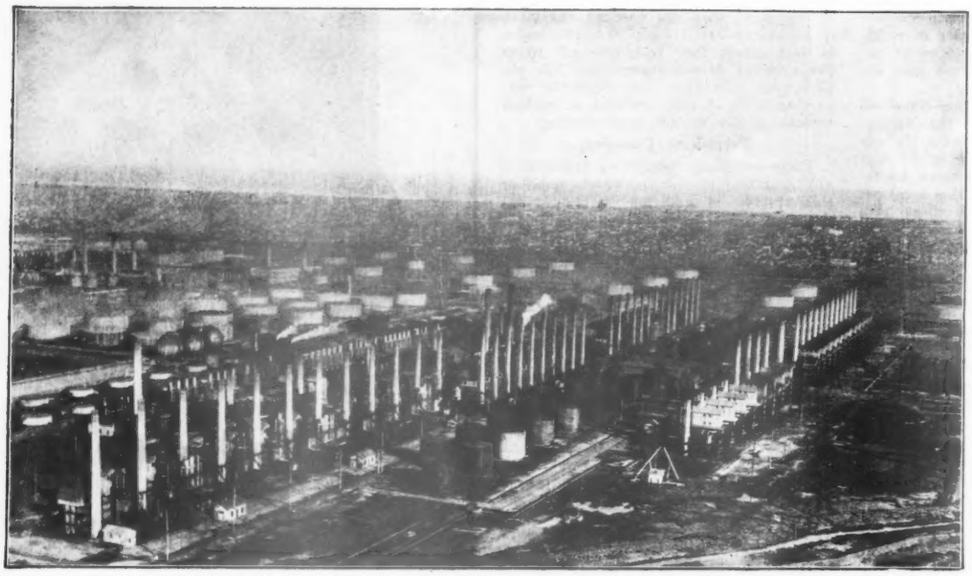

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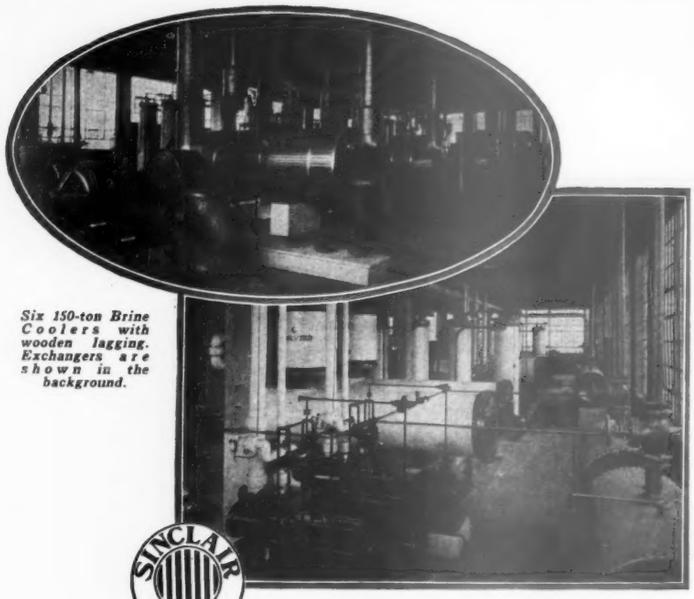

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Carl Lehman, the authority on reindeer development, lecturing in this city spoke with great assurance of the future of the reindeer industry. A considerable quantity of reindeer meat is now being exported from Alaska to the United States and that industry is looking forward to a vastly greater development than has taken place. The interest that has attached to the reindeer industry in connection with the mineral possibilities of that territory may have a great influence in ultimately providing transportation as a governmental necessity with little regard to any commercial aspect of the necessary expenditures.

CENTRAL WEST FIELDS

(Continued from Page 62)

County, the Big Four Oil & Gas Co.'s No. 19 well, 1,000 feet from the south line and 750 feet from the east line of the L. M. Seed farm, SE, Section 21, pumped 20 bbls. naturally the first 24 hours from only 5 feet of pay sand, which is the famous McCloskey formation. Top of sand was found at 1,832 feet and then passed through the 5 feet of sand and went to a total depth of 1,846 feet. The Ohio Oil Co.'s No. 4 well, 660 feet from the north line and 630 feet from the east line of the J. B. Jett farm, SW, Section 11, is a 5-bbl. pumper. The oil was found in the Ridgley sand from 1,205 to 1,228 feet, where a 40-quart shot was used. Same company is starting No. 6 on the J. H. Buchannan farm, same section.

In Montgomery Township, Crawford County, Dill and others' No. 1, on the J. H. Armstrong farm, is reported dry. In Martin Township, the William C. Kennedy Co. is drilling No. 9 on the J. P. Willson farm, Section 1.

In Casey Township, Clark County, W. C. McBride, Inc., is starting No. 1 on the W. Davis farm, Section 25, and in Martinsville Township, same county, Rhodes & Keith are drilling No. 1 on the John McNurlan farm, Section 31.

MICHIGAN FIELDS

(Continued from Page 62)

though it has been known as the Saginaw sand,—is the formation in which oil was found about 14 years ago in drilling near the Bristol Street Bridge. It has been drilled during the present development, but with rather disappointing results heretofore, although the wells drilled to the Saginaw of late outside of the Stelzreide well have been located outside of the present area where the Berea sand is known to be productive.

New Completions

Outside of the big well of the Sun company, on the Ferdinand Stelzreide farm, there were five additional completions reported in the Saginaw Field, all within defined limits.

K. & M. Oil Co.'s No. 1 J. C. Reed property, on Reed Street, showing for 20 bbls. Top of sand was at 1,805 feet and drilled 20 feet in the sand and shot with 60 quarts. Same company's No. 1, on the George Bishop property, at Clark and Carrollton Streets, is estimated at 25 bbls. Top of sand was at 1,798 feet, drilled 20 feet in the sand and shot with 60 quarts.

Wells-Schmidt Co.'s No. 3 Whittier property, northwest of the Whittier-Mershon-Natatorium, struck top of Berea sand at 1,805 feet, and drilled 21 feet in the sand and shot with 80 quarts, is estimated at 20 bbls.

Production was brought a step closer to the West Genesee Avenue business district when the Saginaw Prospecting Co. drilled in and shot its No. 1 on the J. D. Draper property at the foot of State Street near the Michigan Central Railroad. The well is within a half block of Genesee Avenue and almost in the rear of No. 10 House of the fire department. The well got top of the sand at 1,804 feet and was drilled 21 feet in for an 80-quart shot. In common with other wells drilled in that locality, it apparently made an excellent showing being estimated at from 20 to 25 bbls. initially. This well was shut down for a few days by the company to await developments in the price situation. Completion of an offset well to the Draper well made it desirable to drill it in. No. 2, of the same company on the Northmoor Subdivision, is shut down on top the sand for the same reason. Same company's No. 2, on the Mershon Vineyard property on Weiss Street, is estimated at 20 bbls. Top of sand was at 1,805 feet and the well was drilled 21 feet in sand and given an 80-quart shot.

Field Notes

Fordney Petroleum Co.'s No. 1, on the Glen Gardner property on Schaefer Street, is close to pay sand. Same company is starting a well on the William Foley property at Clark and Hermansau Streets.

Ohio Fuel Corp. is due in with No. 4 on the Fisher farm, Section 10, Saginaw Township, in the northwestern part of the field.

Other wells that are almost due for completions are: Ohio Oil Co.'s No. 1 on Oakley Street, near Reed Street; Schaiberger and others' No. 1 Schaiberger property, at Pleasant and Oakley Streets; W. M. Bradley & Son's No. 1 on the Clarence Clark property at Clark and Hanchett Streets. At least three or four wells may reach the pay sand before the next report.

Atlas Oil Co. is drilling No. 2 on the Palmer property at Davenport Street and the Michigan Central Railroad, just west of No. 1 on the same property. J. H. Shaltry and others are drilling No. 2 on the John Brechtelsbauer property on North Michigan Avenue, near Madison Street, in Carrollton.

KENTUCKY-TENNESSEE

(Continued from Page 60)

In the Bowling Green Field of Warren County, but one completion was reported, the Zickers Drilling Co.'s No. 1 well, 1,800 feet from the north line and 109 from the south line of the W. L. Bryant farm, 9 miles southwest of Bowling Green. The well had an initial production of 20 bbls. from the shallow pay at 475 feet. Numerous new wells are starting up in this county, especially around Alverton, between Bowling Green and Scottsville and about 11 miles out of Bowling Green. In that area, R. B. Walker alone has five strings running. He is drilling No. 1 on the Edward Myers, No. 1 Rebecca Russell, No. 1 John Larmon, No. 1 John Crosby and No. 1 on the Murray Kirby farms. About eight years ago a well was drilled on the Murray Kirby farm that had a fairly good showing of gas, and one drilled about the same time on the John Larmon farm had a showing of oil, while a well drilled on the Bates farm, about a mile toward Bowling Green from Alvarton, had an exceptionally good showing, but was never put on the pump. The Bates well had a 7-foot cave and gassed strongly, as the writer was present when both the Bates and Kirby wells were brought in.

No completions were reported from the Scottsville Field of Allen County on account of being unable to get over the low country.

No completions were reported for the week from the Tennessee fields.

TO PROSPECT IN CUBA

SAN ANTONIO, Tex., Apr. 2.—Roy G. Lane of Havana, Cuba, is interested in the oil fields in Texas producing from the Serpentine formation (Thrall and Lytton Springs). In a letter he tells of the flurry in Cuba about 11 years ago when five or six wells were drilled to Serpentine, near the city of Havana and are still producing a little oil. The field in Cuba and the two in Texas are said to be the only fields producing from Serpentine formation. Two of the wells in Cuba came in for better than 100 bbls. and with three others have produced to date about 100,000 bbls. of oil and the oil has been selling at $5.04 per barrel. The wells are owned by native interests at Havana. With inadequate equipment they have drilled other wells without success. Mr. Lane has acquired a block of 10,000 acres and plans to do some prospecting.

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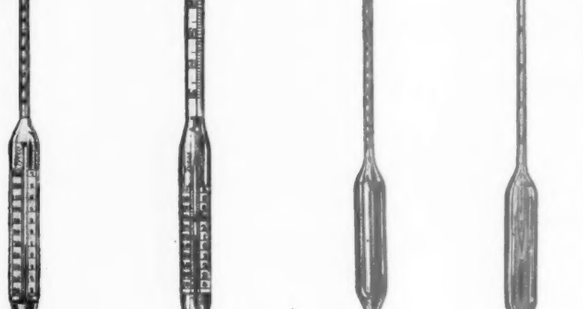

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STEEL MILLS RAN AT HIGH RATE DURING SECOND HALF OF MARCH

By B. E. V. Luty

PITTSBURGH, Pa., Apr. 4.—The official report of pig iron production in the United States in 1926 shows 39,372,729 gross tons, which is in close accord with the estimates. The year was third best, being 2½ per cent under 1923 and a small fraction of 1 per cent under 1916. The increase over 1925 was 7.3 per cent. Proportions of the different grades made in 1926 were much the same as formerly, 55 per cent basic, 26 per cent Bessemer and low phosphorus, 14 per cent foundry and ferrosilicon and 4 per cent malleable.

Steel mills ran at a particularly high rate in the second half of March, possibly at above 95 per cent in the matter of ingot production. The rate of ingot production ran somewhat above the rate of finished steel production, as some mills have been accumulating ingots, in a mild way, as an extra precaution against possible coal strike troubles. Also, some steel consumers have been taking a little extra steel, not that they are really accumulating stocks, but that with stocks kept down to the absolute minimum for a long time past a little relaxation of the policy seemed to be in order on account of coal strike dangers. Accordingly, the official report of steel ingot production for March may perhaps equal the record high rate of March a year ago, though in general, with the seasonal swing upward, the tendency has been for production to run slightly less than that of a year previous.

Coal Strike Effects

There is scarcely a chance of the coal strike causing steel to become at all scarce or to advance in prices in any of the finished lines. The mills are well fortified by stocks of by-products, gas and steam coal, and there will be much production. Some striking in nonunion fields, the Connellsville region and West Virginia, is expected, but not as much as in the 1922 strike, while, unlike the condition in 1922, the Pittsburgh district is in line to have a good bit of open shop operation. District operators will not at once avail themselves of the offer of the United Mine Workers, decided upon last Tuesday, to let union mines run on a provisional extension of the old scale, but should coal prices advance materially some are likely to do so, having had such a hard time of late that the opportunity to make a profit could hardly be resisted. Thus the judgment in the coal trade is that the offers settle it that there cannot be any fancy coal prices during the strike.

At the opening of the second quarter of the year the pipe mills do not find themselves in nearly as good position as was expected, as regards operating rates and the volume of business coming in. While line pipe business has been really in excess of capacity, and has been heavier even than was expected, demand for well material has been relatively poor. There has been some increase in buying, but by this time there should be some sort of a rush, if the pipe trade is to be anything like what it was last year. Demand from the southern fields has had ample time to open up. Regularly the buying starts in the South and works its way north, over a period of say two months.

Pipe Buying

Buying of standard or merchant pipe has increased farther but is still far from active, in relation to total productive capacity. Last year was not a particularly good one in standard pipe thought it was quite fair, and there is doubt whether this year will be as good.

Far from pipe mill operations increasing markedly, as would be expected for this time of year, there are occasional reports of slightly reduced operations, and the pipe mills as a whole may not be operating at much over 75 per cent; some sanguine estimates recently, of an 85 per cent operation, were undoubtedly overdrawn.

The pig iron markets continue dull. Predictions of an advance in valley foundry iron, from $18.50, are withdrawn. One influence has been the continued light demand, the other being the break in the contract coke market. Connellsville operators were holding out for $4 to $4.25 on second quarter furnace coke markets, but at the last moment one operator yielded, and the contract business has gone through at $3.50 to $3.75, about 75 per cent of the business being estimated to have been done at $3.50.

DEVELOPMENTS IN VENEZUELA REVIEWED

(Continued from Page 88)

is an experiment which is being carefully watched.

Rio de Oro

This is another camp belonging to the Colon company, about 60 kilometers from El Cubo, and situated on the Oro River, a stream branching off from the same river as the Tarra.

Four wells have been completed here. Conditions are identical almost, with those at El Cubo, and production amounting to a potential 2,000 bbls. a day is kept shut in.

Miscellaneous Wildcats

Besides the fields outlined, many wildcats are being drilled in different parts of Venezuela.

Venezuela Gulf Oil Co. is drilling five wildcats other than those already mentioned, on both sides of the lake.

Standard Oil of California (operating as Richmond Petroleum Co. and California Petroleum Co.), has four exploration camps.

Standard Oil of Venezuela also has four camps, one of which had to be shut down on account of trouble from native Indians.

Venezuelan Sun, Ltd., has been working for years with discouraging results, and has started its sixth well in the Onia Field for information and possible oil. It has two other camps in more or less out-in-the-wilds locations in the Valera district.

Orinoco Oil Co. is drilling several wildcats in the hope of opening up new areas.

Omnium Oil Co. is also working, not far from Maracaibo, using a new Sullivan outfit on one of their rigs.

RUNS FROM SOMERSET, SOUTHERN CALIFORNIA

SAN ANTONIO, Tex., Apr. 2.—Pipe line runs of three small fields near San Antonio for March show practically no change in production. Somerset runs were 59,394 bbls. for February, a daily average of 2,121 bbls., compared with 69,232 bbls. for January, a daily average of 2,233 bbls., a drop of 112 bbls. in the daily average.

Southton Field pipe line runs were 5,522 bbls., a daily average of 197 bbls. for February compared with 6,016 bbls. and a daily average of 194 bbls. for January.

Calliham Field in McMullen County, through the Live Oak Pipe Line, the only transportation from the field, ran 1,798 bbls. for February, a daily average of 64 bbls. which is the lightest run the field ever had. Litigation is probably responsible for the falling off.

Southton oil is all run by the Pioneer Oil & Refining Co. Runs from the Somerset Field by companies taking the oil were as follows:

	Bbls.
Grayburg Pipe Line Co.	26,963
Southern Refining Co.	11,104
Pioneer Oil & Refining Co.	21,328
Total	59,394

MEXICAN PURCHASE REPORTED

The Mexican Atlas Oil Co. is reported purchasing the holdings of the Atlantic, Gulf & West Indies in Mexican fields.

EUROPE TO GET CHEAPER GASOLINE DEVELOPING LARGER USE OF CARS

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Apr. 2.—The reduction of approximately 4 cents a gallon in the price of gasoline in England a few days ago calls attention to present weakness in the foreign gasoline markets. Two causes are given as contributing to the situation, first intense competition abroad, and second, weakness in the American price situation.

There are other contributing causes, and it is not possible to state definitely the extent to which these work, in as much as the policies of the leading marketers abroad prohibit giving reasons for many market fluctuations, for obvious reasons. It has been reported that the leading marketers of gasoline in Europe see in low prices the best manner of motorizing the countries concerned. That this is not an unreasonable attitude is obvious when it is considered the consumer in Europe pays from 35 cents to $1 a gallon for the product. In addition, the foreign exchanges and present financial position of the European nations makes such prices more of a hardship, and the motor car more of a luxury, than would be the case otherwise.

The oil companies supplying Europe with gasoline have come to the conclusion that the motor car can never be as popular there as in the United States until gasoline is within somewhat the same range of price as in the United States. On the other hand, so long as the bulk of the gasoline supplied to Europe comes from the United States, the freight charges, import duties and other cost factors must be taken into account, in the price charged European consumers.

The bulk of the gasoline consumed in Europe is 64-66 375 end point gasoline and 61-63 390 end point gasoline. In the past, these grades of gasoline have been more expensive in the United States than 58-60 437 end point gasoline, taking as an index the Gulf Coast export quotation, so that the foreign consumer has had to pay more at the start, without taking into account the heavy freight and tax charges.

Spread Narrowing

The spread between the export grades of gasoline and U. S. Motor gasoline has been steadily narrowing, however. In addition, the price of natural gasoline, used largely in the manufacture of the export grades blended with high endpoint gasolines, has fallen and the production has increased many times because of the heavy yield of gas in some of the new flush oil fields of the United States. In other words, the cost of the export gasolines has fallen and it promises, if present conditions continue, to fall even more, even, perhaps, below the cost of U. S. Motor gasoline.

The export field is recognized not only as a vast field for expansion in the consumption of gasoline, but also as a potential market which will take up any slack in the American market. The only manner in which this foreign field can be developed, however, is to encourage larger use of motor vehicles. This cannot be done through raising of gasoline prices.

Europe has a large population, fairly good roads throughout, and it is considered one of the most promising fields for the development of motor transportation and, as already pointed out, gasoline consumption. With a surplus of gasoline either present or in the offing, the importance of quick development of the field can hardly be overemphasized.

There are obviously many more causes of lower gasoline in Europe than any desire on the part of motor car or oil interests to encourage consumption. Competition and lower prices in America are two other reasons. But in addition there are other considerations.

Substitutes Developed

Europe, in order to bring down the price of motor fuel as much as possible, has pushed the development of substitutes. Just how far this has gone is not readily ascertainable, in as much as claims of many makers of substitutes are apt to be extravagant. However, Germany, where the art of chemistry has advanced perhaps beyond that of any other nation in the world, has adopted the use of many valuable substitutes. In France government encouragement has been given the use of various substitutes, and we find that in nearly all European countries substitutes are used, largely in blends with gasoline, more than in the United States, where gasoline is comparatively cheap.

Competitive conditions in the European gasoline marketing field are more pronounced than ever before. The American oil companies have not easily held their proportion of the gallonage, although in most cases they have succeeded in doing so. The Dutch-Shell combine has also maintained its relative position. But two important newcomers have created a great amount of competition for the leaders that had never been present before.

In recent years the Russian oil supply has been dumped on the European markets, whereas formerly the bulk of it was consumed in Russia. This means at present at least 10,000,000 bbls. of gasoline a year, or approximately 500,000,000 gallons, available for the European markets from practically a new source.

The other big competitor of the old line concerns is the Anglo-Persian Oil Co., which only in recent years has done any large amount of gasoline business in Europe. The company's European gallonage is now practically equal to that of Russia.

Russian Competition

The competition from Russia is particularly aggravating, in as much as it is said the Soviet interests are willing to undersell competitors in order to get the gallonage. This competition has been lessened somewhat by purchases of Russian gasoline by outside interests, but these purchases have not been sufficient to reduce the competition much. Russian interests have succeeded in making many contracts with independent marketers in Europe, assuring them of a steady outlet for their production for years to come.

The Anglo-Persian Oil Co. is controlled by the British Government, and it is not thought this concern would be likely to force lower prices for the sake of quick sales. In fact the Anglo-Persian company is a sort of reserve for the British government's oil requirements. However, the resources of the company in Persia are supposed to be so great that the company feels it can handle a large current business without exhausting its reserves materially.

One way in which Anglo-Persian has developed its European and other business, different from that of Russia, has been by building refineries in the countries in which it markets. This is always a popular method of doing business, as most countries are anxious to encourage refining at home. This, furthermore, fits in well with the position of the company, as in Persia conditions for refining, as to labor and so on, are not advantageous.

The United States still has the edge on all European business, in as much as at least 80 per cent of the gasoline of the entire world is produced here. The only way in which this works to the advantage of the country, however, is in the ability of Americans to produce gasoline more cheaply than other nations. Here is perhaps another phase of the present price-cutting in Europe.

American refiners not only have the largest crude oil resources, but their refining methods are largely ahead of those employed in any other country. In other words, although the United States produced in 1926 about 73 per cent of the world's crude oil, its percentage of gasoline was greater. This was due to "cracking" and to the more widespread production and use of natural gasoline.

THE FOOS Type L

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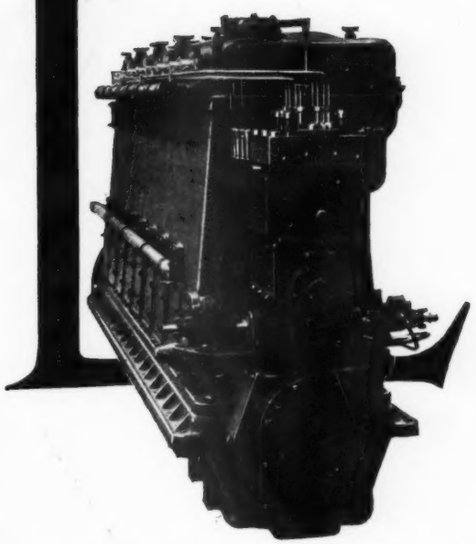

FOR dependable auxiliary service in pipeline stations the Foos Type L has no equal. It requires less floor space and head room than any slow speed Diesel, it burns the same cheap fuel, but it has a much higher speed and power rating than any slow speed Diesel of such small physical proportions.

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This engine is completely enclosed, and is lubricated by a pressure system, even to the valve arms and rollers. It is built in units of 2 to 8 cylinders, developing 50 to 475 H.P. and weighing 60 to 30 pounds per H.P.

Completely illustrated and described in bulletin G-707.

THE FOOS GAS ENGINE CO.
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For 40 years manufacturers of high-quality internal combustion engines exclusively. Types for all gas and liquid fuels.

The Foos Gas Engine Co.
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Please send me by return mail copy of your bulletin G-707 on the Foos Type L.

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Flange Construction

Rivets hold flange securely. Angle reinforcements give additional strength to spokes. Wheels furnished for all shaft specifications.

Moore Steel Tug Rim

One piece, double V groove, rolled steel tug rim. Diameter 7'. For wooden band wheels.

Moore Steel Bull Wheel

Heavy shaft, shrunk and rivet
gudgeons. One piece double V
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LEE C. MOORE & COMPANY, *Inc.* PITTSBURGH · TULSA

Established 1907

It is firmly believed that Americans are now in the best position so far as prices are concerned, and if any further drastic price cutting develops in Europe it will hurt competitors of American companies most. In addition, the high grade of oil produced in the United States is a factor. When Seminole oil comes more largely on the market, a high production of gasoline can be expected without the use of special processes. This will further cut the cost of producing gasoline in this country, beyond a point which could be reached by foreign refiners.

Price War Expected

Some American exporters of gasoline expect a stiff price war in Europe for the next few months. A leading executive of a local exporting company left the other day for Europe to make a special survey of the situation abroad, as it is expected developments will have a strong bearing on the domestic markets this year.

It would be interesting to know the present condition of gasoline stocks in Europe. Shipments from the United States were exceptionally large. Although this was due in part to greater consumption, there is a question whether stocks were not built up quite heavily also. For instance, in the last six months of 1926 7,149,353 bbls. of gasoline went to the United Kingdom, against only 4,220,312 bbls. in the same period of 1925, an increase of about 69 per cent. It is considered doubtful if consumption increased by that percentage.

It is reported in some quarters that gasoline stocks in Europe are abnormally large at the present time. Whether too large or not depends on consumption. It is also stated on good authority that many European buyers of American oil, including agents of American companies, have placed most of their orders for supplies to last through May, which means a possible early let-up in buying for several months.

There is still another factor which may make for lower oil prices in Europe this year. Freight rates are easing off considerably after a period of abnormally high rates. This is due to the fact that in some quarters the movement has slackened somewhat, while many new tankers are coming on the market which were rushed to completion because of the recent shortage.

It is estimated by one large shipping agent that by the end of March there will be 1,000,000 tons of idle tankers throughout the world. This certainly is a gloomy prediction, but it comes from a well-informed source.

Tanker rates have already fallen in some trades. One fixture of a tanker for Gulf to United Kingdom trade was made at 45 shillings, against a recent high of 51 shillings.

EFFECT OF U. S. OVER PRODUCTION ON SOUTH AMERICAN OUTPUT

By L. M. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

Just what the effect of domestic crude oil overproduction and other factors, such as the Mexican controversy over the petroleum law and the scarcity of tankers, will have on producing operations in South American countries and in Mexico, and, conversely what the trend of foreign imports and their effect on the domestic situation, will be in the immediate future is difficult to determine. It is reasonable to expect that until some relief from domestic overproduction is seen, the effect will be retarding on operations in foreign countries which ordinarily export the majort part of their production to the United States. The tanker shortage gives no hope of immediate ability to increase the movement, while in Mexico the attitude of the government is resulting in a decline in production which, it appears, will grow to considerable proportions and is in addition to the natural decline in the proven fields.

In Venezuela the Lago Oil & Transport Co., notably among some of the larger producing companies, is rapidly increasing its storage facilities to take care of larger production in anticipation of a backing up of demand in this country. At the same time Venezuelan crude is being used by Coastal refineries to make up for the decline in Mexican crude and is chiefly a fuel oil for which the market is good. Furthermore, the Gulf Refining Co. will be handling additional Venezuelan crude when its refinery outside of Philadelphia is completed. These latter factors, coupled with the fact that Venezuelan production is naturally on the increase, indicate that an increase in the importation of Venezuelan oil into the United States might be expected. It is not believed, however, that any sizeable increase will be recorded because of the inadequate transportation facilities, if for no other reason.

Colombia's Position

Normally a slowing up in the movement of oil out of Colombia might be expected because of the domestic situation, but special factors influence this situation. All the oil coming out of Colombia is produced and pipe lined and tankered by companies affiliated with the Standard Oil Co. (New Jersey) and is refined at the eastern seaboard plants of that company. The movement has run around 30,000 bbls. a day, representing the pipe line capacity out of the Infantas Field, and the company's refining program has been made to take care of this crude. The pipe line capacity is being increased to around 50,000 bbls. a day, and, again, it is logical to assume that this amount of oil will be moved to New Jersey company or affiliated company plants in accordance with a program worked out some time ago. In fact, recent statements made by the company call attention to the fact that Colombia will soon be exporting 50,000 bbls. a day.

It is possible that operations in, and exports from, Peru will be restricted because of the present glut. This was the case during the domestic overproduction of 1923 and 1924. Peruvian production averaged better than 23,000 bbls. a day in 1926 and could have been larger. However, Peruvian imports into the United States are not large, most of the oil going to Canadian refineries.

As stated, a considerable falling off in the movement of Mexican crude into the United States will occur. During January Mexican imports were at a low point for recent years, averaging 66,000 bbls. daily, against 73,000 bbls. in December. The following shows crude oil imports into the United States in 1926 and 1925 and for January and December last:

Imports of Crude Oil (Barrels)

From—	1926	1925	January 1927	December 1926
Mexico	40,399,000	55,049,000	2,040,000	2,253,000
Venezuela	12,285,000	4,692,000	1,320,000	1,573,000
Colombia	3,621,000	.....	839,000	917,000
Other	4,079,000	2,083,000	315,000	245,000
Total	60,384,0$0	61,824,000	4,514,000	4,988,000

Venezuela and Colombia last year more than made up for the drop in Mexican shipments into the United States. In addition to the crude shipments, there were imports last year of 20,900,000 bbls. of refined products, mostly from Mexico, against 16,300,000 bbls. in 1925.

The movement of refined products out of Mexico will also show a considerable decline. Operations of refineries in Mexico are being reduced and some plants are

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All-Steel Braden Heads

Here's another BARSCO product that, because of its superior design and *forged steel* construction, renders a *longer service* and has many advantages over the ordinary cast iron head.

Will stand up under the most severe service—*no danger of breakage.*

The *forged steel* from which the Braden Head is made has a carbon content of from 50 to 60 points and tensile strength of from 90,000 to 110,000 pounds.

For working pressures up to 4000 pounds

"Barsco" Forged Steel Braden Heads are provided with an inner thread into which a short piece of casing is screwed. The head is then lowered into position below the derrick floor and set up. Outlets are threaded for 2-inch or 3-inch pipe. These heads are furnished with rubber rings for packing and a hinged iron ring which can be removed, allowing the couplings to be pulled through head without breaking any connections. Furnished with either solid or split Stuffing Box.

Prices and weights furnished upon application.

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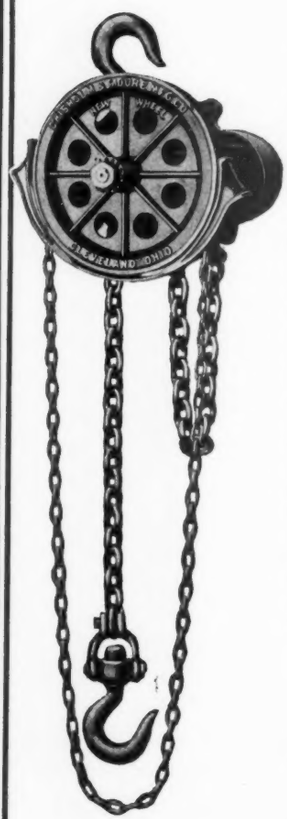
HIGH SPEED

The Only Hoist Operating on the GYRATING PRINCIPLE



WHAT is the *gyrating principle* — the exclusive feature which distinguishes Cyclone Hoists from all others? It is the distinctive rotating movement of two yokes which, operated by eccentric shafts, move smoothly into mesh with the powerful lift gear at directly opposite points. More than twice the usual number of lift gear teeth are always in mesh, assuring positive and uniform operation; a minimum of vibration; and exceptionally long life.

Every other detail of Cyclone Hoists is accurately designed to meet the exacting requirements of a high speed hoist of the greatest efficiency.

If you are interested in securing the maximum benefits from your investment in hoists, insist upon "Cyclone" Hoists.

Sold by Leading Oil Well Supply Houses

THE CHISHOLM-MOORE MFG. CO.

Manufacturers of "Cyclone" Hoists, "Matchless" Trolleys, and "Matchless" Derrick Cranes.

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OVERHEAD HOIST CRANES TROLLEYS TRACK SYSTEMS

being closed as a result of the situation and the scarcity of crude. It is also noted that shipments of Venezuelan crude into Mexico are being made, but this is for blending purposes with Mexican crude.

May Revise Shipments

The domestic crude oil situation may force a revision of estimates as to the present year's production of the countries shipping products into the United States. This situation, compounded with the local situation in Mexico and the natural decline in the proven fields, indicates that Mexico will probably produce less than its total output in 1919 when the "Golden Lane" was just coming into its own. Production may fall below 70,000,000 bbls. Last year Mexico's production dropped off 25,000,000 bbls., and the rise and fall of the oil yield in that country is shown in the following table:

Mexican Oil Production

	Barrels		Barrels
1917	55,293,000	1922	185,057,000
1918	63,828,000	1923	149,585,000
1919	87,073,000	1924	139,678,000
1920	157,069,000	1925	115,588,000
1921	194,756,000	1926	90,000,000

A factor in the situation affecting the relationship of foreign and domestic crude is that foreign crude represents largely heavy oil and the principal overproduction is of light oil. Mexican and Venezuelan crude is largely a fuel oil source, and to some extent the same is true of Colombian crude, and this makes for a continuance of the movement into the United States from an economic standpoint. The bulk of the Mexican production for the past few years has been so-called Panuco or heavy crude as distinguished from Southern or so-called light crude which predominated up to 1922 and from which about 15 per cent gasoline is derivable on straightrun operations. In refinery operations in Mexico the light oil is used in a good many plants with the heavy crude to lighten the latter, and this also explains the importation into Mexico of lighter Venezuelan crude to blend with Panuco crude.

The trend of Mexican production, classified light and heavy, is shown as follows:

Mexican Oil Production

	Light Oil Barrels	Heavy Oil Barrels	Total Barrels
1921	152,645,000	42,111,000	194,756,000
1922	138,293,000	46,764,000	185,057,000
1923	61,043,000	88,542,000	149,585,000
1924	39,104,000	100,574,000	139,678,000
1925	37,128,000	78,460,000	115,588,000
1926	32,000,000	58,000,000	90,000,000

Venezuelan Production

Venezuelan production is now running at the rate of 55,000,000 bbls. a year, contrasting with the total production of 37,000,000 bbls. last year. Maintenance of this rate or the increase of production to even a higher figure will undoubtedly be affected by the present crude oil situation in this country, and it is too early to predict whether actual production will be curtailed or whether any oversupply above market and transportation facilities, will merely be represented by increased amounts held in storage in that country.

Despite the change in the situation of the past couple of months caused by American overproduction, accessible South American fields this year will actually make up for the decline in the Mexican fields. In this connection the following table is of interest, showing that last year the combined production of Venezuela, Peru and Colombia made real headway in catching up to Mexican output (figures in barrels):

	Mexico	South America			Total S. America
		Venezuela	Peru	Colombia	
1922	185,057,000	2,201,000	5,314,000	323,000	7,838,000
1923	149,585,000	4,201,000	5,699,000	424,000	10,324,000
1924	139,678,000	9,042,000	7,812,000	445,000	17,299,000
1925	115,588,000	19,687,000	9,164,000	581,000	29,432,000
1926	90,000,000	37,000,000	11,000,000	6,000,000	54,600,000

Making Good Progress On Pipe Lines From Panhandle, Tex., Field

AMARILLO, Tex., Apr. 1.—The Humble Pipe Line Co. has completed and tested the first 50-mile unit of its new Panhandle pipe line and it will shortly begin to move crude oil from its Burnett tank farm, in Section 75, Block 5, of I. & G. N. Survey, in northwestern Carson County, to its Rockledge tank farm in Donley County.

The 10-inch welded line was given a successful test Saturday and Sunday, the pressure being increased to 1,000 pounds.

Two 55,000-bbl. tanks are up at Rockledge and they will be filled and as soon as the unit from Rockledge to Childress is finished, this oil will be pushed ahead. The Humble's line will tie into its new west Texas line at Comyn. It will be 315 miles in length. It should be running oil from the Panhandle regularly early in May.

Only 60 miles remain to be constructed of the Prairie Pipe Line co.'s 205-mile line from Kingsmill, in Gray County, to Ringling, in southern Oklahoma. It will be an 8-inch welded line. In the meanwhile the Prairie is shipping oil by its line from Kingsmill to Whitted, on the Rock Island, and by tank cars to destination until the new line is completed. It will be in operation by May 1.

Gulf Pipe Line Co.-Magnolia Pipe Line Co. have completed their joint pipe line from Panhandle, in Carson County, to Truscott, in Knox County, and the Truscott unit has been finished to Connellee Station in Eastland County. No tests have been made as yet, however, of their new line.

TAX BOARD RULING

WASHINGTON, D. C., Apr. 2.—The Board of Tax Appeals has held in the case of C. W. Carey vs. Commissioner of Internal Revenue, that expenditures made on an oil well which proved worthless and was abandoned, are deductible as a loss in the year in which same was abandoned; that deduction of pro rata share of expenses of operating oil wells are as business expense, and that expenses of operation and depreciation of an automobile used to transport petitioner between residence and oil field, and over the field, were deductible as business expenses.

CHILEAN OIL LAND LAW

All oil-bearing lands in Chile will be regarded as property of the state under a provisional act recently passed by the Chilean Congress, amending mining laws of that country. The Chilean national mining code, which reserves all guano and nitrate of soda deposits to the state, has been amended to include petroleum concessions now in force that are not developed within one year from December 26, 1926. Those now possessing petroleum concessions or oil land claims, who desire to develop their holdings, must have the properties again surveyed under state supervision within the one-year period. Failure to comply with this requirement will be regarded cause to cancel the concession or claims.

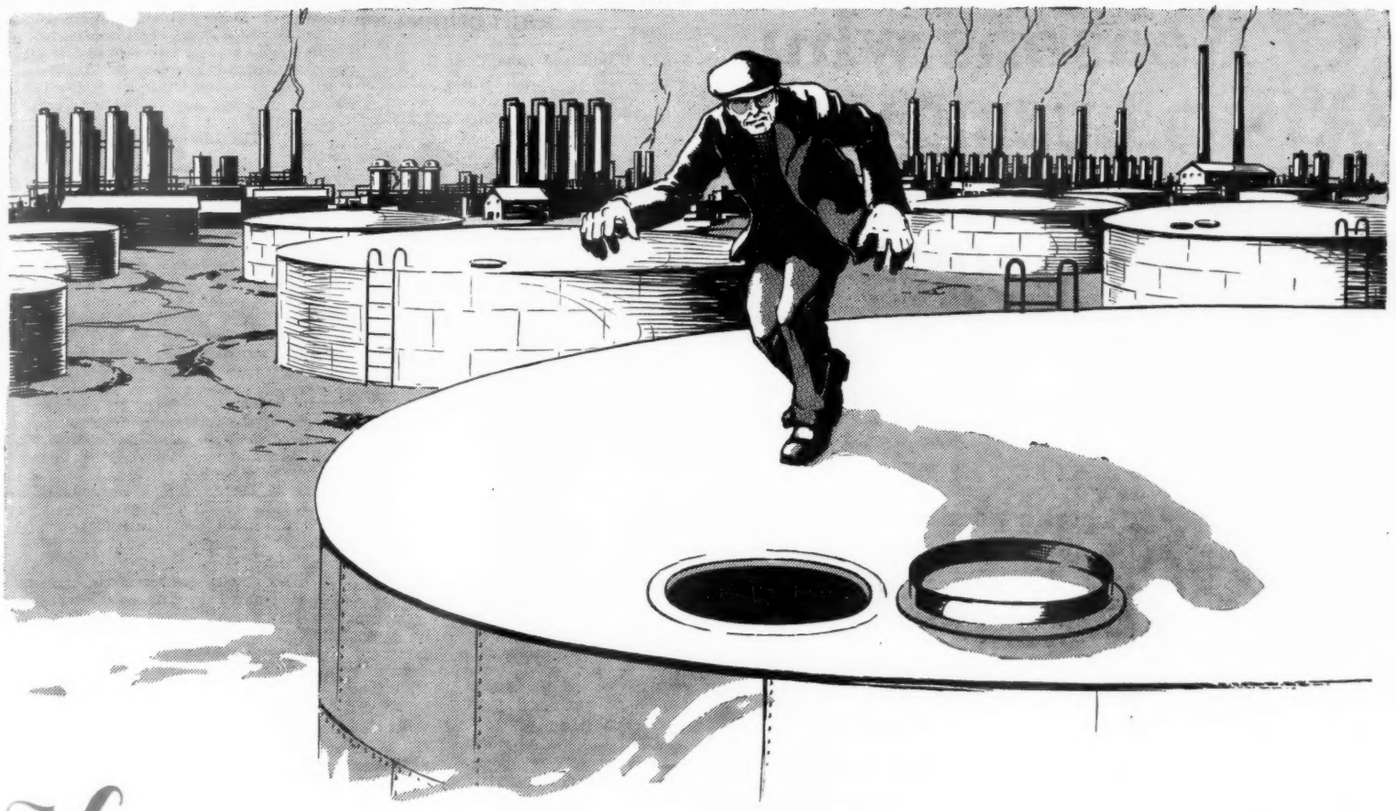
CANADIAN OBITUARIES

CHATHAM, Ontario, Apr. 2.—William Thomas Campbell, for many years accountant for the Union Natrual Gas Co. of Canada, died at Chatham, in his eighty-second year.

Mrs. William Pauling died at her home near Petrola recently in her 62nd year. In 1890 she accompanied her husband, a prominent Canadian driller, to Austria, where Mr. Pauling spent three years with the McGarvey interests.

TO DRILL IN BRAZIL

Geological studies of prospective oil fields in Brazil are being continued under contract with the Espirito Santo State government. Drilling equipment has been purchased and it is expected that active operations will be started in April.



Keep Gauge Hatches CLOSED against EVAPORATION

The Gauge Hatch illustrated above is our improved positive gauge hatch, with two positive seats—one provided by the rim of the top cover which fits into a recess filled with liquid when closed, and another seat is formed by the special gasket, the outer wall of which is spark-proof. Foot-lever operation; automatic closing.

You take the precaution of *locking* every door which would admit thieves to your home at night—then make sure that every entry on your tanks is closed to EVAPORATION, the thief that is waiting to take advantage of every opportunity to steal your valuable oil.

Due to the method of operation of most "safety equipment," it is impossible to maintain an airtight lock on tanks, because if there is not some means for air to get into the tank to relieve pressures, the tank will collapse or rupture.

This does not apply to LIQUID SEATED SAFETY VALVES, the *automatic* safety and conservation equipment, which makes it possible to keep your tanks air tight against evaporation, at all times, without danger. This low-cost tank equipment whips evaporation at its source, in all seasons. It is the POSITIVE MEANS OF COMPLETE PROTECTION—AGAINST EVAPORATION—AGAINST FIRE.

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6 Reasons why McCORD LUBRICATORS will increase *your* production and profits

McCord Force Feed Lubricators

Standard of the Oil Fields

1. Make possible greater production at less cost.

2. Increase life of equipment by reducing wear.

3. Save approximately 50% in lubricating cost and do a better job.

4. Eliminate the human element. McCord lubricators never forget. They start with the first turn of the wheel and continue to lubricate until it stops.

5. Reduce breakdowns, thus increasing production.

6. First cost is the last cost—No McCord lubricator has ever been known to wear out. Lubricators installed in the oil field ten and twelve years ago are still on the job.

Ask your National Supply salesman for further details.

McCORD RADIATOR & MFG. CO.
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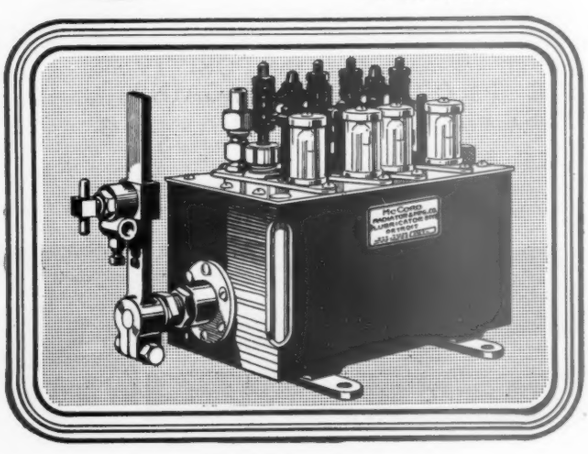

DRILLING AND PUMPING RIG EQUIPMENT

(Continued from Page 79)

with reversing clutch pulley belted to driven pulley shaft that is supported on adjustable pedestal bearings and directly coupled to the drive shaft of a double reduction geared unit. It is possible that a single reduction geared unit would serve equally as well for this kind of a layout, as some reduction could be taken care of in the size of belt pulleys used. Clockwise rotation, however, is better taken care of by use of double reduction, or worm gear drive. The total over-all reduction is only 10 to 1. Satisfactory belt speed is possible in this manner because large diameter engine pulleys may be used. This method of arrangement is applicable wherever steam or oil field gas engines are used. It will not serve for drilling unless a back-geared bull wheel is developed, or the bull wheel is placed outside the derrick. In this respect a reversible electric motor will have a great advantage. However, it will not be so desirable to use a belt with the electric motor drive, and reduction gears of high ratios may be found to be most successful only for pumping duty when not operated with other than electric power. In other words, high speed gas and oil engines may likely be more advantageously used when a belt or chain drive is employed and the power take-off has been suitably reduced at the power end. Likewise, safety from fire hazard may be a governing factor regarding space, type, and use of high geared transmission.

"Universal" Rig Machine for Drilling and Pumping Rig

Realizing the low power transmission limits of the usual standard equipment, the excessive cost of upkeep, and at the same time the many advantages due to standardization of parts, completeness and simplicity of layout, and adaptability, the writer has undertaken the development of a layout that will combine the advantages of the special pumping unit idea, the geared unit, with all and more than one can obtain with either the present size standard equipment or any of larger dimensions. The questions of costs, which are to be considered later, was one thing that prompted this undertaking, for it cannot be lightly dismissed in favor of high degrees of mechanical efficiency altogether. Too great a departure from slowly improved standard equipment was thought to be unwise. The clamor for standardization and the efforts of the A. P. I. in this direction are for naught if we are not to profit with a co-ordinated effort. The result has been an assembly built that meets all the essentials before enumerated for a powerful cable-tool drilling rig or heavy duty pumping machine that is inexpensive, yet durable and dependable, and versatile enough to be left at the location to do any future work at the well. It may be driven with equal efficiency by almost any prime mover of suitable hosepower and speed range.

Briefly described, the plan calls for steel supported bearings for standard 6-inch crank shaft with a 6-hole crank, using regular A. P. I. front and back jack post bearings, placed the usual distance apart, and, instead of using a band wheel for belt drive, there has been substituted a large sprocket-gear driven by a suitable roller chain capable of transmitting ample horsepower with the usual safety factor multiplied by four when reciprocating loads are encountered. This allows for more than would likely be encountered during steady pulling. At a convenient space from this sprocket there is also on the crank shaft a special double grooved tug wheel for serving the dual purpose, first, while drilling, cleaning out and fishing, to drive the bull wheels in the derrick in much the usual manner and secondly, when drilling operations are over, to carry a specially designed adjustable counterbalance on the perimeter of the wheel to equalize the pump load. This counterbalance or equalizer has the advantage of a long distance between center of its mass from axis of crank shaft. As more cast iron weights are added, the distance becomes greater. It is in the clear of the walk at the front portal of the derrick and needs no special safety guard. Many patented counterweights fixed on the walking beam crank itself are more liable to be a source of danger under certain operating conditions. On the outer end of crank shaft extension is the usual standard calf wheel sprocket and clutch.

The Intermediate Shaft

To accomplish a double reduction and to serve many divers purposes, an intermediate shaft is paralleled with the crank shaft at a distance of about 5 feet 6 inches center to center, on which is mounted a clutch operated driver sprocket to chain to the crank shaft sprocket, serving as the main drive. Next to this is another clutch operated roller chain sprocket serving as a driver for any standard chain-driven sand reel supplied with a driven sprocket of suitable dimensions. An extension of the intermediate shaft carries a small fly wheel which serves as a neutral brake drum if needed, and this much of the intermediate shaft must be coupled with the balance of shafting used by means of standard A. P. I. approved flange of same bolt circle that is used ordinarily for flanging a reversible clutch pulley to an oil field gas engine. The driven end of the intermediate shafting carries whatever is wanted. It may carry:

1. A two-speed sprocket transmission operated by friction clutches controlled by one lever extension to the derrick floor. This can be operated during rotation of shaft under load or otherwise. Two individual chains connect the high and low speed to the prime mover.

2. A plain belt pulley may be substituted particularly when a steam engine is desired for the power unit. This gives us the possibility of using large diameter pulleys on engine and on intermediate shaft; consequently a fair belt speed and good arc of belt contact at relatively short center distances. An oil field gas engine may be belted in like manner for a condition where the two-speed transmission is not particularly necessary.

3. A clutch operated reversible shaft may be substituted for the two-speed assembly which would grant the opportunity of using any suitable oil field engine without the troublesome outboard bearing attachment now used for its reversible pulley. This reversible pulley shaft could become the company's standard for any engine. After drilling operations are over the two-speed transmission may be transferred to the next drilling outfit and the reversible pulley shaft substituted for slow duty engine requirements for pumping.

4. For the two-speed transmission belt pulleys may be substituted for sprockets in case belt drives are wanted instead of high speed roller chains.

Advantages Described

Speeds for all requirements are easy to attain. Two speeds forward and two speeds reverse will meet with instant approval of field operators.

Operating efficiency may be as high as the most expensive geared units will attain if high speed bearings are used. High efficiency of roller chains has long been well known. One should expect 75 to 85 per cent delivered to crank take-off, compared to 35 to 45 per cent for the usual standard rig.

Upkeep should be $50 to $100 per month less than with standard equipment, and depreciation greatly reduced. The power unit upkeep will be also greatly reduced. Outboard clutch pulleys, so troublesome on engines, may be entirely eliminated.

The cost of power will depend upon what is used, but it is certain to be much less for any type selected for operating this unit. Two-speed electric motors will not be required and the practical possibility of using electric motors generally will become more nearly proven. Gas engine power will be more practical for all classes of work than it has ever been with any other rig equipment.—A well is now drilling quite successfully using a multiple cylinder gas engine driving this machinery.

Special chain driven hoisting drums may be used after well is drilled but it is

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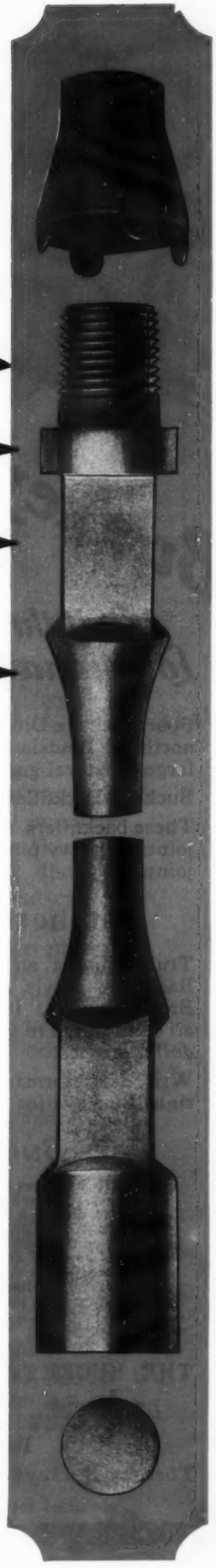


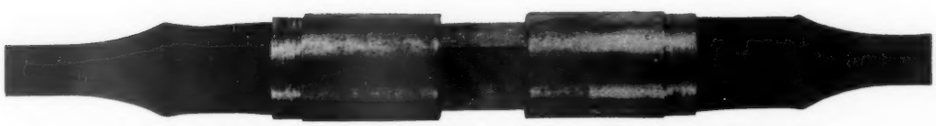
TABLE OF SPECIFICATIONS

Size				
Rod	5/8"	3/4"	7/8"
Pin	15/16"	1 1/16"	1 3/16"
Collar	1 3/8"	1 1/2"	1 11/16"
Square	15/16"	1"	1 1/16"

ORDINARY STEEL	THIS SPECIAL SUCKER ROD STEEL
Elastic Limit, 50,000 lbs. per sq. in.	71,000 lbs.
Tensile Strength, 100,000 lbs. per sq. in.	114,000 lbs.
Elongation, 25%	56%
Red. in Area, 45%	56%
FATIGUE VALUES, 20,000	**50,000**

NOTE—An increase of **42%** in elastic limit, but the Fatigue Resistance is **2½** times that of the ordinary steel.

If your dealer can't supply you, write us or get in touch with any of our field men



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WITH THE STRONGEST COUPLING

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put it through
Louisiana Swamps and Jungle

Four Buckeye Ditchers cut this 170-mile ditch from northern Louisiana to Baton Rouge—one of the largest natural gas pipe lines in the country.

Buckeye Backfillers put the dirt back in the trench.

These backfillers, used as cranes, handled the 45,000 joints of heavy pipe—weighing nearly 2,000 lbs. per joint.

Ditcher-Backfiller-Crane

Truly this is an all-'round Buckeye job. Ford, Bacon & Davis, Inc., the engineers; Williams Brothers, Inc., the contractors—and Buckeye—*all contributed to the success of this thirteen million dollar project.*

Write for information which will help *you* pick the right Buckeye for *your* needs.

This Buckeye User Says—

"We have been using Buckeye Ditchers for ten years. We are using on this job four No. 4 Specials, digging a ditch 30" wide and 5' deep. We dig from 1000 to 3600 feet per day of 24 hours, depending on the ground and stumps and swamps. On this job we have used Buckeye Backfillers with good success—also the Backfiller as a crane for handling pipe. This does away with 24 men. This is the best machine made for this purpose."

WILLIAMS BROTHERS, Inc.
Tulsa, Okla., Contractors.

THE BUCKEYE TRACTION DITCHER CO.

Manufacturers of
Trench Excavators (both Wheel and Chain-and-Bucket Types), Pipe-Line Trench Excavators, Tile and Open Ditchers, Back-Fillers, Pipe Screwing Machines, Curb Diggers and Clay Diggers

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Buckeye TRENCH EXCAVATORS FOR OVER 30 YEARS

contemplated to use the standard sand reel for a rod and tubing hoist. This will obviate the necessity of further use of both the calf wheel and bull wheel at the pumping well, except for extreme emergency.

Counterweights used while pumping need not be altered when it is desired to pull rods and tubing. A cut-off clutch will still the rotation of crank shaft as the sand reel may serve to do the hoisting by being driven from the intermediate shaft. After well is ready to start pumping again it is only necessary to attach pitman on wrist of crank, throw out sand reel clutch and throw in the driver clutch for crank rotation.

Every part is easy to inspect and to replace or repair in the field. Much of the assembly is of standard equipment long familiar to the field men.

This equipment should operate the largest pumps, or the most difficult pump loads, ever attempted by any rig up to the present time. It leaves chiefly but one troublesome item of pumping equipment yet unsolved, namely that of sucker rods, which will not fatigue and break off at the pins. It should raise the economic limit for deep well pumping to the practical lifting of 600 to 800 bbls. per day.

As a drilling rig it can be set up almost as quickly as the present standard equipment and in case a hole is lost by a bad fishing job its position may likewise be shifted as readily.

Alternative Methods

Present standard equipment used for lifting fluid from 4,000-foot wells give records of interesting expense data. If one could follow through a period of three to five years the total mechanical expense chargeable only to rig equipment, it would be sufficient evidence to warrant the expenditure of much additional capital investment initially for the layout. Unfortunately too little effort is made in proper allocation of costs in many oil company offices to guide the engineer in demanding more efficient rigs. Some idea of operating expense may be obtained from the following:

1. Belt Expense—Thirty-six deep wells in one of our major fields equipped with gas engines, show an average length of service for each belt used of 117.8 days. This average is taken from 73 carefully prepared belt records. The cost per belt per day was $1.57, and cost of lost production due to each belt per day was $1.83, making a total average expense chargeable to each unit to $3.40. In another set of records from 14 wells, covering the use of 34 belts, the total expense chargeable to this item of equipment averaged $3.44 for each belt per day.

2. Reverse Clutch and Gas Engine Expense—Reversible clutches on gas engines show an expense, including loss of production chargeable to breakdowns, of from $0.17 to $0.22 per well per day. Engines, belts, and clutches taken altogether may cost as high as $6 per day per well, not including fuel, lubrication, or any labor expenses. This is not particularly unusual and in most cases the amount of fluid lifted is well within the limits for good pump equipment to handle in a most satisfactory manner. Based on the assumption of always securing sucker rods that will withstand the fatigue there is good reason to invest carefully in well-built pumping rig equipment. In many cases it may compete favorably with gas-lift compressor equipment in initial cost and operation expense, where the latter method is now being tried.

Factors Involved

Before one considers at length the advisability of using a standard rig with large diameter driver and driven belt pulleys to accommodate speed requirements both for engine and for crank shaft and to provide the use of wide belts, we must take into consideration an overhead charge to cover the expense of belt inspectors and proper appliances for correct application and care of belting. Field workers alone cannot take proper care of high-grade belting. Driver pulleys of 22 inches minimum diameter and band wheels 14 feet in diameter will call for better lubricated bearings than are now generally used. A lubrication expert may have to be employed. For the rig, better alignment will be necessary; steel supports will be fundamental; and, A. P. I. rig irons should be much improved. Consequently, of the three alternatives we have proposed as feasible methods to apply when planning our equipment for deep wells, there will be many arguments available by proponents of any of the three methods. But the final decision will generally be based on the capital investment, simplicity of layout, and finally, its cost to operate. From an engineer's point of view, it is very questionable if the rig of large dimensions is a step in the right direction.

Unless belting can be manufactured to meet specific oil field requirements for slow transmission of heavy reciprocating loads better than it has appeared possible to manufacture in the past, it is very likely that transmission losses will still exist as too large an item of production expense.

By substituting two or more speed reductions between the prime mover and main crank shaft, the use of belt drives on the high speed end will be satisfactory. Whether the slow speed division of the transmission will be more satisfactory by means of chains or gears remains to be seen. Both systems have individual merit, and it is too early to predict their relative advantages from an efficiency point of view. There is every reason to believe that multiple speed reduction is the most feasible system to provide at all times suitable adjustment of speeds; for the power unit to meet conditions for well operation that necessitates frequent adjustment of speed and power at either end of the system. At the present time it is often impossible to adjust speeds in an inexpensive manner. Finally, electric motorizing of wells will become more profitable, due to the opportunity afforded to increase the mechanical efficiency.

Capital Investment

In order to present some idea of the relative expenditure necessary to "rig-up" a well to be drilled with cable tools, which is assumed will be a heavy pumper later, so that the total cost of rig expenditure for both requirements may be compared when considering any of the three principal methods of procedure, the following tabulated estimates are presented. These estimates include the present standard rig which cannot be considered satisfactory set-up, followed by four other arrangements that are now being tried with promising results. It will be noticed that:

More capital investment will be necessary to provide any improvement over the standard rig.

The dual system is more expensive than any of the three proposed or contemplated layouts that provide for but slight changes to convert a driller into a pumper.

The enlarged standard rig, which retains the idea of belting a prime mover directly to the band wheel, is practically as expensive as the more efficient plans that provide for a double speed reduction with a possibility of no belts at all being required.

The two-speed Universal design is the most adaptable for all conditions of any heavy machine developed thus far.

Conclusions

1. Rig equipment should be so designed and arranged that all cable-tool operation may be taken care of without replacing anything but the prime mover when a "driller" is converted into a "pumper."

2. No more of the standard A. P. I. equipment should be sacrificed than is absolutely necessary.

3. Belt driven band wheels are not necessary and high speed belting only should be included in futher transmission equipment for either drilling or pumping rigs.

4. Geared crank shaft equipment for drilling is limited to use with electric motors unless present designs are greatly altered.

5. Standardization will be aided and the oil industry will profit if rigs are capable of being driven by any choice of prime mover already in use.

6. Rig efficiency depends largely upon transmission equipment of careful design, to meet the conditions of service intended.

FEWER RIGS UP, BUT MORE WELLS DRILLING, MARCH REPORT SHOWS

Field work in March east of California indicated an increase of 182 in completed wells as compared with the report for February and an increase of 5,000 bbls. in initial production. There were 61 more dry holes and 57 more gas wells.

The reduced prices of crude oil has had a serious effect on new work, but only in the matter of new rigs. The report for the close of March shows a decline of 194 in rigs up, but an increase of 124 is shown in wells drilling which makes the net decline in field work 70. However, the increase in wells drilling is misleading as there are many wells shut down that were active some time ago, yet they figure in the table under the classification of drilling wells.

Following are the summaries for all the fields east of the Pacific fields.

SUMMARY OF ALL FIELDS

Field—	Comp.	Prod.	Dry	Gas
Eastern	351	2,230	34	56
Central Ohio	33	415	9	16
Lima	21	162	2	1
Michigan	24	860	1	0
Indiana	18	355	6	3
Illinois	13	226	2	0
Kentucky	80	2,146	13	2
Tennessee	4	435	0	0
Kansas	151	11,427	62	6
Oklahoma	386	146,824	113	44
N. and W. Texas	475	43,924	167	4
Texas Panhandle	80	19,072	5	7
East Central Texas	1	0	1	0
Gulf Coast	100	47,014	41	1
Southwest Texas	87	901	36	22
Arkansas	47	1,309	15	6
Louisiana	72	2,879	39	12
Wyoming	45	25,066	8	0
Montana	12	848	4	0
Colorado	5	712	2	0
New Mexico	3	375	4	0
Total March	2,082	307,180	564	180
Total February	1,900	301,889	503	123
Difference	182	5,291	61	57

Summary of New Work

Field—	Rigs	Drg.	Ttl.
Eastern	123	409	532
Central Ohio	12	47	59
Lima	7	34	41
Michigan	17	28	45
Indiana	4	57	61
Illinois	2	29	31
Kentucky	10	158	168
Tennessee	2	25	27
Mississippi	12	16	28
Alabama	0	6	6
Florida	2	11	13
Kansas	76	301	377
Oklahoma	263	1,263	1,526
N. and W. Texas	119	893	1,012
Texas Panhandle	94	385	478
East Central Texas	0	25	25
Gulf Coast	58	233	291
Southwest Texas	41	161	202
Arkansas	20	62	82
Louisiana	49	103	152
Wyoming	22	259	281
Montana	11	127	138
Colorado	7	92	99
Utah	3	38	41
New Mexico	11	130	141
Total March	964	4,892	5,856
Total February	1,158	4,768	5,926
Difference	194	124	70

OKLAHOMA FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carter	13	1,428	3	0
Creek	58	12,677	27	6
Garfield	6	560	1	0
Grady	27	2,517	2	5
Kay	26	5,483	4	4
Muskogee and Wagoner	16	346	11	3
Nowata	6	52	0	0
Okfuskee	12	957	6	4
Okmulgee	29	708	9	6
Osage	45	7,794	12	5
Payne	8	245	1	2
Pawnee	10	352	2	1
Stephens & Cotton	6	60	3	0
Seminole	78	101,684	13	1
Tulsa	19	1,099	8	1
Miscellaneous	27	10,862	11	2
Total March	386	146,824	113	44
Total February	348	132,924	96	25
Difference	38	13,900	17	19

Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	Ttl.
Carter	2	61	70
Creek	39	124	163
Comanche	0	9	9
Garfield	2	30	32
Grady	6	87	93
Hughes	2	26	28
Kay	4	73	77
Lincoln	2	17	19
Logan	2	9	11
Muskogee & Wagoner	11	29	40
Okfuskee	13	33	46
Okmulgee	16	35	51
Osage	20	62	82
Payne	0	18	18
Pawnee	9	26	35
Pontotoc & Garvin	8	25	33
Pottawatomie	8	52	60
Seminole	90	400	490
Stephens & Cotton	7	48	55
Tulsa	0	19	19
Oklahoma Panhandle	0	13	13
Miscellaneous	15	67	82
Total March	263	1,263	1,526
Total February	367	1,204	1,571
Difference	104	59	45

KANSAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	16	1,365	4	0
Cowley	11	290	4	2
Chautauqua & Elk	12	1,270	4	1
Greenwood	37	1,795	15	0
Miami	21	500	16	0
Sumner	14	4,573	6	0
Miscellaneous	40	1,634	13	3
Total March	151	11,427	62	6
Total February	114	9,311	55	6
Difference	37	2,116	7	0

Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	Ttl.
Butler	19	43	62
Chautauqua & Elk	5	16	21
Cowley	6	36	42
Greenwood	22	48	70
Lyon	0	11	11
Marion	5	11	16
Rice	1	12	13
Sumner	7	29	36
Woodson	1	9	10
Miscellaneous	10	86	96
Total March	76	301	377
Total February	75	315	390
Difference	1	14	13

ARKANSAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Union	33	902	12	6	14	39	53
Ouachita	8	307	0	0	2	13	15
Columbia	1	0	1	0	2	1	3
Nevada	3	100	0	0	0	5	5
Miscellaneous	2	0	2	0	2	4	6
Total Mar.	47	1,309	15	6	20	62	82
Total Feb.	29	756	7	7	18	64	82
Difference	18	553	8	1	2	2	0

LOUISIANA

Summary of Field Operations

Parish—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Bienville	0	0	0	0	1	0	1
Bossier	5	0	2	3	3	14	17
Caddo	27	2,094	11	2	15	36	51
Caldwell	1	0	1	0	1	1	2
Catahoula	0	0	0	0	1	1	2
Claiborne	2	0	2	0	0	2	2
DeSoto	2	60	1	0	2	4	6
Grant	11	450	9	0	2	3	5
La Salle	5	145	3	0	2	0	2
Monroe dist.	6	*	1	5	5	7	12
Natchitoches	3	0	3	0	4	2	6
Red River	2	50	1	0	1	5	6
Richland	1	0	0	1	4	11	15
Sabine	1	0	1	0	3	8	11
Webster	3	80	1	2	5	2	7
Winn	3	0	3	0	3	4	7
Total Mar.	72	2,879	39	12	49	103	152
Total Feb.	57	1,654	23	13	33	92	125
Difference	15	1,225	16	1	16	11	27

*55,500,000 feet of gas.

TEXAS PANHANDLE

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carson	13	1,880	2	1
Gray	4	822	0	0
Hutchinson	57	15,340	0	5
Wheeler	5	1,030	2	1
Swisher	1	0	1	0
Total March	80	19,072	5	7
Total February	74	11,232	7	9
Difference	6	7,840	2	2

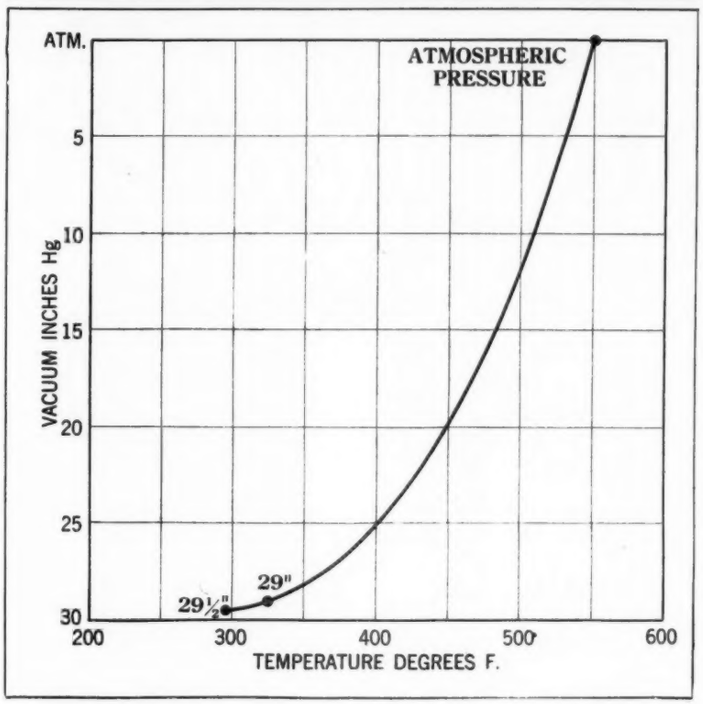
Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	S.D.	Ttl.
Carson	10	62	9	81
Gray	11	35	11	57
Hutchinson	64	162	21	247
Wheeler	3	23	7	33
Miscellaneous	5	36	19	60
Total March	93	318	67	478
Total February	133	304	49	486
Difference	40	14	18	8

NORTH AND WEST TEXAS

Summary of Wells Completed

West Texas—	Comp.	Prod.	Dry	Gas
Crane	14	5,903	3	0
Crockett	1	160	0	0
Ector	1	65	0	0
Fisher	1	0	1	0
Garza	1	0	1	0
Glasscock	1	0	1	0
Howard	11	679	0	0
Jeff Davis	1	0	1	0
Jones	4	780	1	0
Mitchell	4	188	1	0
Pecos	1	427	0	0
Reagan	6	1,525	2	2
Reeves	1	0	1	0
Taylor	1	0	1	0
Upton	29	5,451	4	0
Total March	77	15,173	17	2
Total February	86	35,722	17	0
Difference	9	20,549	0	2
North Central Texas—				
Archer	69	3,929	31	0
Brown	100	14,033	33	0
Callahan	10	0	2	0
Coleman	5	0	5	0



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Robinson, Illinois

Gentlemen:

On No. 2 well Margaret J. Maxwell Lease, we have tried practically every make Ball and Seat without success, getting less than a month's service from any of them. Putting in NO-CO-RO Drops and Seats, we have obtained a year and a half service in this same well and they are still working twenty-four hours a day.

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NORRIS BROTHERS, Inc.

Robinson, Illinois

Mid-Continent Warehouse: Fort Worth, Texas.

Cooke	9	169	4	0
Eastland	17	1,742	5	2
Jack	2	0	2	0
Montague	30	973	6	0
Palo Pinto	1	5	0	0
Shackelford	39	2,347	9	0
Stephens	5	100	2	0
Throckmorton	9	363	5	0
Wichita	60	1,991	30	0
Wilbarger	19	1,400	3	0
Young	23	1,541	7	0
Total March	398	28,751	150	2
Total February	394	31,094	151	3
Difference	4	2,343	1	1

Summary of Rigs and Wells Drilling

West Texas—	Rigs	Drg.	S.D.	Ttl.
Crane	15	46	3	64
Crockett	1	8	1	10
Howard	4	28	4	36
Jones	5	27	4	36
Mitchell	4	15	2	21
Reagan	2	25	5	32
Upton	11	30	6	47
Miscellaneous	21	62	43	126
Total March	63	241	68	372
North Texas—				
Archer	2	39	8	49
Brown	3	79	20	102
Callahan	4	17	11	32
Coleman	1	12	14	27
Cooke	4	25	0	29
Eastland	4	36	3	43
Jack	6	11	3	14
Montague	5	17	9	31
Shackelford	6	47	18	71
Stephens	1	10	4	15
Throckmorton	1	16	3	20
Wichita	1	36	3	40
Wilbarger	14	54	6	74
Young	5	36	5	48
Miscellaneous	5	22	20	47
Total March	56	457	127	640
Grand total, N and W. Texas, March	119	698	195	1,012
Grand total, N and W. Texas, February	157	662	220	1,039
Difference	38	36	25	27

EAST CENTRAL TEXAS

County—	Comp.	Dry	Gas	Rigs	Drg.	Ttl.
Wood	1	1	0	0	6	0
Anderson	0	0	0	0	1	1
Cherokee	0	0	0	0	3	3
Falls	0	0	0	0	1	1
Franklin	0	0	0	0	1	1
Freeston	0	0	0	0	3	3
Hopkins	0	0	0	0	1	1
Limestone	0	0	0	0	10	10
Navarro	0	0	0	0	4	4
VanZandt	0	0	0	0	1	1
Total March	1	1	0	0	25	25
Total February	9	9	0	0	22	22
Difference	8	8	0	0	3	3

GULF COAST

Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Boling	0	0	0	0	0	5	5
Batson	5	25	3	0	1	6	7
Blue Ridge	4	2,400	1	0	4	8	12
Big Creek	2	4,200	0	0	2	5	7
Barber Hill	2	1,600	0	0	0	3	3
Edgerly (La.)	0	0	0	0	0	4	4
Goose Creek	9	570	4	0	1	9	10
Humble	3	0	3	0	0	5	5
Hull	5	775	5	0	2	11	13
High Island	0	0	0	0	0	5	5
Jennings (La.)	0	0	0	0	0	3	3
Lockport (La.)	3	2,400	0	0	3	8	11
Markham	3	300	1	0	0	3	3
Nash	0	0	0	0	1	5	6
Orange	5	410	1	0	2	9	11
Orchard	0	0	0	0	0	2	2
Pierce Jct.	7	8,540	0	1	3	11	14
Piedras Pintas	0	0	0	0	0	3	3
Spindletop	12	25,160	1	0	10	42	52
Saratoga	3	14	1	0	1	3	4
Sour Lake	4	300	0	0	1	1	2
Stark (La.)	0	0	0	0	0	2	2
South Liberty	1	100	0	0	0	8	8
Vinton (La.)	7	210	3	0	3	7	10
West Columbia	1	10	0	0	1	2	3
Miscellaneous	20	0	18	2	23	63	86
Total Mar.	100	47,014	41	3	58	233	291
Total Feb.	118	58,200	46	1	67	176	243
Difference	18	11,186	5	2	9	57	48

WYOMING

Summary of Field Operations

Dist.—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Big Muddy	4	53	1	0	0	3	3
Salt Creek	28	23,184	0	0	10	74	84
Lance Creek	0	0	0	0	0	1	1
Big Horn Basin	3	10	2	0	3	53	56
Lost Soldier & Carbon Co.	5	1,019	2	0	1	17	18
Rock River	1	6	1	0	0	7	7
Fremont Co.	2	700	1	0	1	22	23
Osage	0	0	0	0	2	3	5
Natrona Co.	0	0	0	0	0	5	5
Lincoln & Uintah Cos.	1	100	0	0	3	43	46
Baxter Basin	0	0	0	0	0	7	7
Miscellaneous	1	0	1	0	2	24	26
Total Mar.	45	25,066	8	0	22	259	281
Total Feb.	17	11,416	2	2	27	289	316
Difference	28	13,650	6	2	5	30	35

MONTANA

Summary of Field Operations

District—	Comp	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Kevin Sunburst	12	848	4	0	8	51	59
Cat Creek and Miscellaneous	0	0	0	0	3	76	79
Total Mar.	12	848	4	0	11	127	138
Total Feb.	14	192	6	1	13	131	144
Difference	2	656	2	1	2	4	6

COLORADO

Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	T
Total March	9	712	2	0	7	92	
Total Feb.	13	1,440	3	1	11	102	
Difference	4	728	1	1	4	10	

UTAH

Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	T
Total March	0	0	0	0	3	38	
Total Feb.	1	0	0	1	4	38	
Difference	1	0	0	1	1	0	

NEW MEXICO

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	T
Total March	3	375	4	0	11	130	
Total Feb.	3	335	1	0	13	136	
Difference	0	40	3	0	4	16	

SOUTHWEST TEXAS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	T
Mirando	25	440	6	8	16	58	
Rockdale-Minerva	6	160	1	0	3	12	
Luling	8	264	0	1	5	7	
Kingsville	1	0	0	1	2	6	
Refugio	2	0	0	2	0	5	
Adams Field	5	0	0	5	0	1	
Miscellaneous	40	37	29	5	15	72	
Total Mar.	87	901	36	22	41	161	
Total Feb.	89	1,875	27	25	35	160	
Difference	2	974	9	3	6	1	

EASTERN FIELDS

Summary of Wells Completed

Field—	Comp.	Prod.	Dry	G
Allegany	28	61	0	
Bradford	120	206	0	
Middle Field	5	10	0	
Venango-Clarion	27	39	3	
Butler-Armstrong	8	5	0	
Southwest Pennsylvania	12	60	4	
West Virginia	77	145	16	
Southeast Ohio	74	1,804	11	
Total March	351	2,330	34	
Total February	348	2,079	23	
Difference	3	251	11	

Summary of Work Under Way

Field—	Rigs	Drg.	T
Allegany	11	29	
Bradford	23	138	
Middle Field	0	4	
Venango-Clarion	3	15	
Butler-Armstrong	12	11	
Southwest Pennsylvania	11	44	
West Virginia	37	95	
Southeast Ohio	26	73	
Total March 31	123	409	
Total February 28	146	412	
Difference	23	3	

CENTRAL OHIO

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	T
Knox	3	0	1	2	0	4	
Ashland	1	0	0	1	2	3	
Medina	2	0	0	2	2	2	
Lorain	0	0	0	0	0	2	
Wayne	4	0	3	1	2	1	
Holmes	12	415	1	3	3	12	
Athens	1	0	1	0	0	8	
Coshocton	1	0	1	0	0	4	
Cuyahoga	8	0	2	6	2	10	
Jackson	0	0	0	0	0	1	
Summitt	1	0	0	1	1	0	
Total Mar.	33	415	9	16	12	47	
Total Feb.	34	401	7	19	13	61	
Difference	1	14	2	3	1	14	

LIMA FIELD

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	T
Wood	6	53	0	0	3	4	
Hancock	2	3	1	0	0	3	
Allen	0	0	0	0	0	1	
Auglaize	2	5	1	0	0	4	
Sandusky	2	11	0	0	0	3	
Mercer	3	11	0	0	0	1	
Van Wert	0	0	0	0	0	2	
Seneca	1	40	0	0	1	1	
Lucas	1	0	0	1	0	2	
Ottawa	3	34	0	0	0	3	
Shelby	1	5	0	0	1	3	
Hardin	0	0	0	0	0	3	
Darke	0	0	0	0	0	4	
Paulding	0	0	0	0	2	0	
Total Mar.	21	162	2	1	7	34	
Total Feb.	19	167	1	0	3	30	
Difference	2	5	1	1	4	4	

MICHIGAN

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Saginaw	24	860	1	17	27	6	
Alcona	0	0	0	0	1		
Total Mar.	24	860	1	17	28	6	
Total Feb.	22	350	3	12	40	8	
Difference	2	510	2	5	12		

INDIANA

Summary of Completed Work

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	To
Blackford	0	0	0	0	0	1	
Jay	2	65	0	0	0	2	
Adams	3	35	0	1	0	5	
Randolph	0	0	0	0	0	1	
Gibson	3	50	2	0	0	6	
Pike	4	70	1	1	2	10	
Daviess	3	135	1	0	0	13	
Sullivan	1	0	1	0	0	2	
Vigo	1	0	0	1	0	5	
Allen	0	0	0	0	2	1	
Knox	0	0	0	0	0	1	
Dubois	0	0	0	0	0	1	
Benton	0	0	0	0	0	1	

Johnson	0	0	0	0	0	2	2
Madison	0	0	0	0	0	1	1
Martin	0	0	0	0	0	1	1
Monroe	0	0	0	0	0	1	1
Spencer	0	0	0	0	0	1	1
Warrick	1	0	1	0	0	1	1
Perry	0	0	0	0	0	1	1
Bartholomew	0	0	0	0	0	2	2
Total Mar....	18	355	6	3	4	57	61
Total Feb....	12	96	5	0	3	46	49
Difference...	6	259	1	3	1	11	12

ILLINOIS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Clark	3	81	0	0	0	4	4
Crawford	4	34	1	0	0	5	5
Lawrence	3	28	0	0	0	3	3
Wabash	3	83	1	0	2	11	13
Clinton	0	0	0	0	0	1	1
Madison	0	0	0	0	0	2	2
Macon	0	0	0	0	0	1	1
Shelby	0	0	0	0	0	1	1
Coles	0	0	0	0	0	1	1
Total Mar....	13	226	2	0	2	29	31
Total Feb....	4	180	0	2	5	28	33
Difference...	9	46	2	2	3	1	2

KENTUCKY-TENNESSEE

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Warren	11	80	2	0	0	21	21
Allen	4	7	0	0	0	11	11
Barren	13	92	3	0	0	25	25
Ohio	15	1,630	3	0	0	29	29
Daviess	2	13	0	0	0	4	4
Hancock	0	0	0	0	1	0	1
Cumberland-Monroe	4	47	0	0	0	14	14
Simpson	0	0	0	0	0	1	1
Casey	0	0	0	0	1	0	1
Butler	0	0	0	0	0	3	3
Clinton	1	150	0	0	1	2	3
Adair	0	0	0	0	1	0	1
Grayson	0	0	0	0	0	2	2
Edmonson	1	10	0	0	0	0	0
Wayne	4	38	1	0	0	6	6
Lee-Owsley	1	5	0	0	3	5	8
Wolfe	0	0	0	0	0	3	3
Morgan	1	1	0	0	0	0	0
Estill	12	21	3	0	0	5	5
Powell	0	0	0	0	0	1	1
Lawrence-Johnson	1	5	0	0	0	1	1
Magoffin	8	47	1	0	2	10	12
Floyd-Knox	2	0	0	2	1	3	4
Knox	0	0	0	0	0	5	5
Elliott	0	0	0	0	0	1	1
Menifee	0	0	0	0	0	1	1
Carter	0	0	0	0	0	2	2
Laurel	0	0	0	0	0	1	1
McCreary	0	0	0	0	0	2	2
Kentucky	80	2,146	13	2	10	158	168
Tennessee	4	435	0	0	2	25	27
Mississippi	0	0	0	0	12	16	28
Alabama	0	0	0	0	0	6	6
Florida	0	0	0	0	2	11	13
Total Mar....	84	2,581	13	2	26	216	242
Total Feb....	90	1,965	14	2	21	187	208
Difference...	6	616	1	0	5	29	34

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Imports of crude and refined oils at the principal United States ports for the week ended March 26, totaled 802,000 bbls., a daily average of 114,571 bbls., compared with 965,000 bbls., a daily average of 137,857 bbls. for the week ended March 19, and a daily average of 162,822 bbls. for the four weeks ended March 26.

At Atlantic Coast Ports—	
Baltimore	.....
Boston	.....
New York	354,000
Philadelphia	.....
Others	171,000
Total	525,000
Daily average	75,000
At Gulf Coast Ports—	
Galveston district	64,000
New Orleans and Baton Rouge	141,000
Port Arthur and Sabine district	50,000
Tampa	22,000
Total	277,000
Daily average	39,571
At all United States Ports—	
Total	802,000
Daily average	114,571
Daily average 4 weeks ended	162,822

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended March 26, totaled 989,000 bbls., a daily average of 141,286 bbls., against 722,000 bbls., a daily average of 103,143 bbls. for the week ended March 19, and a daily average of 116,143 bbls. for the four weeks ended March 26.

At Atlantic Coast Ports—	
Baltimore	.....
Boston	179,000
New York	491,000
Philadelphia	148,000
Others	180,000
Total	989,000
Daily average	141,286
At Gulf Coast Ports	.....
Total Atlantic, Gulf Coast Ports	989,000
Daily average	141,286
Daily average 4 weeks ended	116,143

Distribution of total California oil receipts is as follows:

Crude	312,000
Gasoline	360,000
Gas oil	75,000
Fuel oil	242,000
Total	989,000

TURNER VALLEY FIELD DESCRIBED BY VISITOR

CHATHAM, Ontario, Apr. 2.—Writing from the Canadian West, R. Stirrett of Sarnia, tells of a visit to the Turner Valley Field:

"I was driven out to see this great field by T. Draper, a Petrolia boy, vice president of the Royalite Oil Co., which has holdings in the field. Although I have lived for 30 years in the oil belt and more or less familiar with all the features of the oil business in Ontario, yet this Turner Valley was a surprise party for me.

"The valley lies about 40 miles from Calgary. As you come near the valley, all sounds of agriculture are drowned out by the deafening roar of the gas escaping from the wells. Those of us who heard the roar of the Fairbank gas well at Oil Springs during its career can form some idea of the noise at Turner Valley. You can't hold a conversation in the area. A quarter of a mile away two 6-inch pipe lines discharge the surplus gas with a terrific roar, and as it was ignited, and could not be controlled or put out, it was a sight to see and a wonder to hear. The immense volume of flame swayed and leaped in the wind, while the iron pipe lines glistened in the sunshine like the whitest and cleanest kind of white enamel, being coated 2 inches thick with ice, as the gas under tremendous subterranean pressure comes from the well at 32 degrees below zero, and freezes all objects with which it comes in contact.

"I was shown one well recently drilled which was useless, being frozen up, and the drill entangled in the ice jam. Add to this racket a battery of 12 large gas engines all chucking hard at once, and you will have an idea of the babel of loud noises that greets the ear.

"The output of gas from the wells which were under control and which were not frozen up was sufficient to supply the city of Calgary to which place it was piped, to say nothing of the thousands of cubic feet that go to waste daily for lack of control. Another product of the wells in the Turner Valley Field is free gasoline, which, after slight chemical treatment, is pumped to Calgary in a volume of 500 bbls. a day.

"As in all other oil fields, there are partly drilled and abandoned wells, and many financial wrecks strewn by the way. Even with the large and profitable output, it is a question if there has not been more money 'thrown at it' than will ever be retrieved. I think this is a formula that applies to fields where inexperienced capital makes a reckless stab for a fortune.

"The place where the wells are, is somewhat inaccessible, and the prairie land is not too enticing to the settler, so that population is sparse in the region adjacent to the fields. The Royalite Oil Co., therefore, has taken pains to construct bunk houses for its men. The dining hall and the sleeping apartments are of modern type, and all the plumbing, including the showers, seems to be of the best.

"The foreman of the plant, Samuel Coultis, formerly of Forest, Ontario, and his family, live in a snug modern house, equipped with water works and electric lights. The power to create the electricity and to pump the water from the lovely pebble-bottomed trout stream, about four rods wide, close by, is provided by the powerful gas engines to which I previously referred."

DISMANTLING RACK

EL DORADO, Ark., Apr. 2.—Pine Bluff Refining Co.'s 9-car loading rack, in Section 24-15-17, in the Smackover light oil district, is being dismantled and the gathering line of the company is being taken up.

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SHIPMENTS FROM GULF PORTS 506,430 BBLS. LESS IN FEBRUARY

By P. L. McGreal

HOUSTON, Tex., Apr. 2.—A total of 16,888,066 bbls. of refinery products and crude were moved from the Gulf ports during February. This is a decrease of 506,430 bbls. compared with the movement during January.

Refinery products aggregated 9,910,684 bbls., a decrease of 719,724 bbls. from the January figures. The movement of crude comprised 6,977,382 bbls., or 213,294 bbls. more than during January.

The terminals at Port Arthur, Beaumont, Atreco and Smith's Bluff, known as the Port Arthur-Beaumont district, contributed more than 50 per cent of the gross shipments. Those at Texas City and on the Houston ship channel make up approximately 40 per cent, and the Baton Rouge terminal of the Standard Oil Co. of Louisiana the balance.

The Humble Oil & Refining Co. leads with gross tonnage during February, loading out 3,991,219 bbls. of refinery products and crude from its various terminals. The Gulf Refining Co. was next with 2,661,091 bbls. from its Port Arthur terminals, and the Standard of Louisiana third with 2,329,167 bbls. The Texas Company sent out 1,869,080 bbls. from its Port Arthur works.

The export shipments decreased 930,319 bbls. from the January movement. Shipments of refinery products to foreign ports totaled 1,624,036 bbls., while only 70,056 bbls. of crude were consigned abroad.

The following gives the shipments of each company in detail:

FROM PORT ARTHUR
By The Texas Company
Refined

Coastwise	1,322,611
Export	401,408
Total	1,724,019

Crude

Coastwise	145,061

FROM PORT ARTHUR
By Gulf Refining Co.
Refined

Coastwise	2,563,584
Export	35,596
Total	2,599,180

Crude

Coastwise	61,911

FROM BEAUMONT
By Magnolia Petroleum Co.
Refined

Coastwise	1,065,415

Crude

Coastwise	631,543

FROM ATRECO
By Atlantic Oil Producing Co.
Crude

Coastwise	193,349

FROM SMITH'S BLUFF
By Pure Oil Co.
Refined

Coastwise	218,119

Crude

Coastwise	575,403

FROM BEAUMONT
By Atlantic Oil Producing Co.
Crude

Coastwise	124,051

FROM SMITH'S BLUFF
By Atlantic Oil Producing Co.
Crude

Coastwise	78,975

FROM NECHES TERMINAL
By Humble Oil & Refining Co.
Crude

Coastwise	72,995

FROM SABINE PASS
By Sun Co.
Crude

Coastwise	725,608

FROM TEXAS CITY
By Humble Oil & Refining Co.
Crude

Coastwise	1,303,290

FROM TEXAS CITY
By Marland Oil Co.
Crude

Coastwise	450,380

Refined

Export	53,652

FROM TEXAS CITY
By Swiftsure Petroleum Co.
Crude

Coastwise	284,672

FROM INGLESIDE (Mirando Crude)
By Humble Oil & Refining Co.
Crude

Coastwise	238,291

FROM BAYTOWN (Refinery)
By Humble Oil & Refinery Co.
Refined

Coastwise	1,154,707
Export	567,522
Total	1,722,229

Crude

Coastwise	654,414

FROM HOUSTON (Sinco)
By Sinclair Oil Refining Co.
Refined

Coastwise	407,797

Crude

Coastwise	349,856

FROM HOUSTON (Pasadena)
By Crown Central Petroleum Corp.
Crude

Coastwise	439,638

FROM HOUSTON (Pasadena)
By Atlantic Oil Producing Co.
Crude

Coastwise	124,051

FROM HOUSTON (Galena)
By Galena Signal Oil Co.
Refined

Coastwise	255,000
Export	60,000
Total	315,000

By Standard Oil of Louisiana
Refined

Coastwise	1,245,763
Export	559,510
Total	1,805,273

Crude

Coastwise	453,838
Export	70,056
Total	523,894

SUMMARY

Shipments of Refined and Crude From Gulf Ports During February, 1927

Company and Port—	Refined	Crude	Total
The Texas Company, Port Arthur	1,724,019	145,061	1,869,080
Gulf Refining Co., Port Arthur	2,599,180	61,911	2,661,091
Magnolia Petroleum Co., Beaumont	1,065,415	631,543	1,696,958
Pure Oil Co., Smith's Bluff	218,119	575,403	793,522
Atlantic Oil Producing Co., Atreco	.....	193,349	193,349
Atlantic Oil Producing Co., Beaumont	.....	124,051	124,051
Atlantic Oil Producing Co., Smith's Bluff	.....	78,975	78,975
Humble Oil & Refining Co., Neches	.....	72,995	72,995
Humble Oil & Refining Co., Texas City	.....	1,303,290	1,303,290
Humble Oil & Refining Co., Ingleside	.....	238,291	238,291
Marland Oil Co., Texas City	53,652	450,380	504,032
Swiftsure Petroleum Co., Texas City	.....	284,672	284,672
Sun Oil Co., Sabine Pass	.....	725,608	725,608
Humble Oil & Refining Co., Baytown	1,722,229	654,414	2,376,643
Sinclair Oil Refining Co., Houston	407,797	349,856	757,653
Crown Central Petroleum Corp., Houston	.....	439,638	439,638
Atlantic Oil Producing Co., Houston	.....	124,051	124,051
Galena-Signal Oil Co., Houston	315,000	.....	315,000
Standard Oil Co. of Louisiana, Baton Rouge	1,805,273	523,894	2,329,167
Total for Rebruary	9,910,684	6,977,382	16,888,066
Total for January	10,630,408	6,764,088	17,394,496
Difference	719,724	213,294	506,430

EXPORTS

Company and Port—	Refined	Crude	Total
The Texas Company, Port Arthur	401,408	.....	401,408
Gulf Refining Co., Port Arthur	35,596	.....	35,596
Humble Oil & Refining Co., Baytown	567,522	.....	567,522
Galena Signal Oil Co., Houston	60,000	.....	60,000
Standard Oil Co. of Louisiana, Baton Rouge	559,510	70,056	629,566
Total for February	1,624,036	70,056	1,694,092
Total for January	2,517,365	107,046	2,624,411
Difference	893,329	36,990	930,319

WATER PROBLEMS OF CUSHING

The United States Bureau of Mines station at Bartlesville, Okla., has published a very complete and very interesting report upon the water problems of the old Cushing Field of Creek County, Oklahoma, which treats in detail of the conditions and problems and their solution. The report was compiled by D. P. Wardell, R. R. Brandenthaler, W. L. Williams and John Van Dall, all of the bureau engineering staff.

WILLIAM GUSTIN DIES

CASPER, Wyo., Apr. 2.—William Gustin, aged 42, purchasing agent for the Mammoth Oil Co., with headquarters at Casper, died at the Salt Creek Field Hospital after an accident on the Salt Creek Highway, from which pneumonia developed.

CALIFORNIA FIELDS

(Continued from Page 56)

flowing 3,075 bbls. of clean 26.7 gravity oil and 2,500,000 feet of wet gas daily from 6,675 feet. This is not the deepest well in the field, showing the largest initial, but it is by far the largest single producer in this area. The Associated is running eight other strings of tools on the Lloyd lease and will probably complete No. 37 in the near future as it looks exceptionally promising at 6,305 feet. No. 4 Hartman also looks quite promising and it will be brought in from 6,520 feet next week. The Shell's No. 15 Taylor, drilled to 6,210 feet and finished with a 5⅞-inch oil string, was somewhat of a disappointment, although the initial production of 925 bbls. may build up after the well has been on production for a short time as it is still showing a cut of about 10 per cent. This well has in excess of 1,500 feet of oil sand and hence the small production listed was somewhat disappointing. No. 12 Gosnell, on the other hand, which the Shell finished a short time ago doing 1,920 bbls. from 6,189 feet, has been increasing from day to day and is now running in excess of 2,200 bbls. of clean pipe line oil each 24 hours. The General Petroleum's No 1-A Hisey is showing all kinds of kick at 4,355 feet and would have staged a spectacular blowout at this point if it were not for quick action by the crew in killing it. The Bolsa Chica instead of completing No. 2 Hartman at 6,150 feet as originally anticipated, decided to continue drilling and the hole will be carried to around 6,450 feet if possible. Good footage is being made in the company's No. 3 Hartman and this well should be on production within 60 days. The Petroleum Securities is still held up with a fishing job in No. 1 Willett in the southern part of the field but is making good progress with Nos. 2 and 3 on the Orton lease.

Huntington Beach

Daily production in the Huntington Beach Field has apparently reached a temporary settled stage and, while the output will register a still further decline, it will probably remain more or less stable for another few weeks before resuming its downward trend. Production in this district will probably settle another 10,000 bbls. a day between now and the close of the year, although completions will have a tendency from time to time to arrest the drop and may result in slight increases on several occasions. There were only three new wells finished in this field during the week, one being a fairly large producer. This was Pollard & Callahan's No. 1 Huntington, which came in flowing 750 bbls. of 23.2 gravity oil daily from 3,902 feet, the hole having been finished with a 6¼-inch liner carrying 235 feet of perforated. Fred Reuther's No. 1 Huntington, drilled to 3,928 feet and finished with a 6¼-inch liner carrying 200 feet of perforated, failed to respond to swabbing and bailing operations of several days' duration. It was, as a result, put on the beam and is pumping 315 bbls. of clean 21.2 gravity oil daily. The Fleet Petroleum's No. 10 Huntington started off at the rate of 400 bbls. daily but declined shortly after to 150 bbls. It looks as though the last cement job has not held up as the water cut coincident with the drop in production jumped from 5 per cent to 25 per cent. The Martinez Oil Co.'s outpost on Ninth Street in the extreme eastern part of the town lot area is still the most interesting drilling project. It is down over 4,300 feet and it is probable the company will land pipe for a production test within a short time. The possibility of drilling out in the Pacific Ocean beyond the tide line and paralleling the town lot section at Huntington Beach has been revived as a result of an attempt to secure passage of a bill in the State Legislature authorizing such a move. Considerable red tape, however, must be eliminated before any general drilling campaign could be undertaken in the open sea and for this reason it looks practically hopeless. The Globe Lease & Royalty Co. has just about concluded rig construction for its second well in the older section of the Huntington Beach Field.

Inglewood

The Standard brought in a fairly satisfactory commercial producer in the Inglewood Field early in the week and, while several new wells have been finished in this district during the past few months, none has been equal to the company's No. 42 Baldwin just completed. This well, drilled to 1,533 feet and finished with an 8¼-inch oil string, is being listed as a 305-bbl. producer, the oil testing 19.6 degrees and showing a cut of 2 per cent. E. L. Craigen succeeded in converting a 5,075-foot duster at Rosecrans into a 500,000-foot gasser by plugging back to the 2,000-foot level and perforating the pipe just above that point. The existence of this dry gas zone has been known to operators for a long time and the production of Craigen's No. 1 Athens is not surprising. The Union should finish several wells on its Howard Park lease soon and, while No. 4 Trust, a deep test at 6,498 feet, does not look any too promising it may yet secure production.

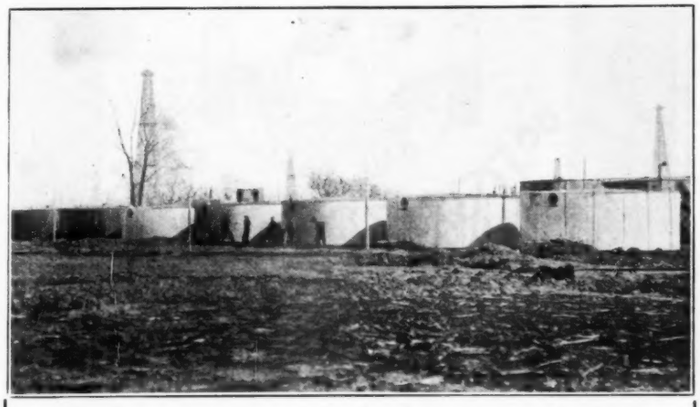
The Main Oil Co., after drilling two dusters near Wasco, switched operations to Torrance a short time ago and its first hole is being prepared for production. It will be put on the beam at 3,600 feet and, while there was a little gas present it was not sufficient to result in a natural flow. The well will therefore be put on the pump within a few days with the outlook good for around 150 bbls. The Chanslor-Canfield Midway Oil Co. should also finish a new well or two within 10 days as No. 70 Del Amo and No. 70 Torrance are both nearing completion. The California Petroleum has just finished No. 9 on Mattern Lease No. 3 in the Santa Fe Springs Field at 4,594 feet and it will be put on a production test. Fred Roberts will also make a bid for production and, while it is the intention to produce from the Meyer zone around 4,650 feet, the hole may be finished a little shallower.

Coming Completions

A check of the various drilling projects under way in the Richfield, Brea Olinda, Coyote and Montebello Fields indicates that several completions can be anticipated during the next 30 days. The Union has several potential producers on the Stern, Thompson, Chapman, Ayres and Yorba leases at Richfield in addition to three more on the Stearns lease at Fullerton. The Chanslor-Canfield Midway Oil Co. is running the oil string in its No. 6 at Richfield which is expected to be on production within 10 days. Nos. 7 and 8, recent spuds, are standing cemented at 700 feet but the company will resume drilling shortly. The California Petroleum has just concluded drilling on No. 22 Yarnell at Richfield which will be followed into production by No. 8 Krug and No. 13 Richfield Consolidated. The Shell is running five strings of tools in the Fullerton or Brea Olinda Field, two on the Fisher and one each on the Orange, Pico and Puente leases. These wells are in proven territory and should result in commercial production. The General Petroleum's next completion at Richfield should, barring the development of mechanical trouble, be No. 6 Hugo, now down 4,150 feet. No. 7 Hugo at 3,200 feet, No. 3 Mullin at 3,200 feet and No. 4 Mullin at 2,000 feet should be completed later. The Associated picked up the top of the oil sand in No. 5 Kammerer at 3,790 feet and the bit is still in the pay at 3,875 feet. E. L. Craigen's No. 1 Soderberg at Richfield ran into a nice-looking sand at 3,112 feet and preparations are being made to run in and land a string of pipe. The St. Helens contemplates the completion of No. 1 Anderson at Coyote within two weeks as the water string has just been set with the expectation of making a production test.

Kern River

George F. Getty added another new well on the Kern River front by the completion of No. 20 Tegeler, listed as a 125-bbl. pumper from 2,295 feet, finished with a 6¼-inch liner. No. 21 Tegeler at 1,500 feet and No. 13-A Lehnhardt at 2,100 feet should be on production



Partial View, Battery of 12 500-Bbl. Maloneys on Franks Farm, Tom Slick, Inc., at Seminole.

THE STRONGEST BOLTED STEEL TANKS

Sturdy *STRENGTH* is inherent in MALONEY Tanks, insuring their ability to handle maximum loads continuously without strain and to withstand wind storms and other emergencies. Strength is assured by the heavy angle-iron frames, the powerful steel channels and strips with which all seams are reinforced,—and by the heavy, substantial sheets of Keystone Copper Steel.

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The MALONEY Tank has *NO* weak points! Our special rubber packing and Gaso Cement insure permanently tight seams; large cleaning-out plates set flush with bottoms promote convenience; valve and thief-hatch equipment are the best the market affords.

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MALONEY TANK MFG. COMPANY

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Sizes: 12 to 3,000 Barrels.

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Howell Aluminum "3-in-1" Vacuum Pressure Valve and Thief-Hatch—The BEST and LATEST Deck Equipment—POSITIVE Safety.

MADE OF KEYSTONE COPPER STEEL

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

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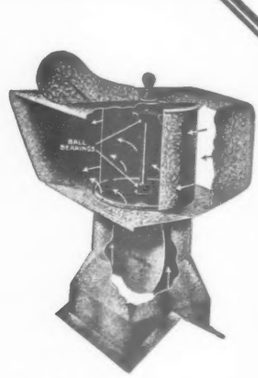

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Makers of Ventilators, Exhaust Heads and Oil Filters for every service.
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Holds steady in storms. High grade ball bearings prevent sticking. Adjustable damper in base below the revolving section assures high ventilating efficiency.

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shortly. The Petroleum Securities successfully finished No. 4 Robinson in Section 28-28-27 at 2,477 feet. It started off doing 155 bbls. of 14.2 gravity oil daily. The General Petroleum has increased its drilling operations on the Kern front by grading for a new well on the Sill property and another on the Westmore. The company's next producer should be No. 26 Young, standing cemented at 1,765 feet. Development work on the Young lease has slowed up somewhat but additional work should get under way soon. There were no developments of interest in the Mount Poso Field, although the Union, Shell, California Petroleum and Barnsdall are all developing their holdings.

California Wildcats

The California Eastern Oil Co. has suspended operations on its initial Potrero wildcat, No. 1 Smith, at 5,282 feet due to the unfavorable outlook. The company staked a new location about one-half mile northwest of the Associated's test and the rig is being constructed. George W. Johnson made a test of his No. 1 Wickham near Castaic and the failure to secure commercial production has resulted in a temporary suspension with the possibility of a resumption of work within 30 days. George F. Getty has staked a tentative location on the 15-acre Anderson property at Rivera but since the Marland was the first to acquire leases in this area it is believed this company will also shoot in the near future. None of the other wildcats in southern California showed any improvement, in fact, several took on a very doubtful aspect and have all the earmarks of dry holes.

The Pacific Eastern's Bakersfield test was reported down 3,890 feet early this week with no showings of importance. The Milham Exploration Co. landed a string of 11-inch at 3,562 feet in its Buttonwillow wildcat and a string of 8⅝-inch on bottom at 4,200 feet. The 11-inch became stuck and it was alowed to stay, the company finding it advantageous to run in another string instead of being held up pending recovery and another reaming job. This well has been showing considerable gas but so far the evidences of oil have been negligible. The Shell leased 40 acres in this general vicinity last week and another 160 acres near Jasmine, where the Chanslor-Canfield Midway Oil Co. has its second wildcat down 385 feet. The California Petroleum has taken over the leases and properties of the Tavares Oil Co. in Stanislaus County and its first wildcat will be drilled near the town of Newman in Section 12-7-8.

The Shell's No. 1 Murphy near Petaluma has just passed the 4,750-foot level and, while the outlook does not appear to be any too favorable, drilling will be continued in the hope that deep production might be secured. The Shell's test at Half Moon Bay in San Mateo County is making good footage, being down 2,270 feet. The Rio Grande Oil Co.'s No. 1 Canet in Ventura County, about 2 miles north of the Ventura Avenue Field, created considerable excitement by showing a lot of gas and while only a limited oil showing has been found, the outlook is exceptionally bright. The Continental's No. 1 Burnham near Piru also showed some favorable symptoms this week and the next 100 feet of hole will be watched very closely.

MEXICAN FIELDS

(Continued from Page 42)

completed a salt water well there. Another test is rigging. It is possible that Mexican Eagle will complete this test as it is not involved in the sale in question.

James McIntyre, general manager of the Mexican Atlas interests, is here looking over the transfer of the properties in question. C. F. McCauley, resident manager of the Mexican Atlas interests, becomes new resident manager of the two companies. Mr. McIntyre will return to the United States in a few days, making his headquarters at Fort Worth, Tex., where the Atlas people have some interests. He will, as general manager, visit Mexico from time to time. Outside of exploiting the production of the Agwi, as before mentioned, there is no set program for any new move on the newly-acquired properties at this writing.

It might be remarked that this is the first instance of a large company selling out to another in Mexico since the Royal Dutch-Shell interests acquired the control of Mexican Eagle Oil Co., Ltd., and that did not mean a complete submergence of a company's holdings as does the one under discussion.

COMPRESSOR PLANT PLANNED AT BORGER

The Empire Gas & Fuel Co. has ordered equipment for flowing its wells with gas or air and will proceed at once with the installation of a compressor plant on its Weatherly lease at Borger, Tex. This plant will consist of two compressors each driven by a 75-horsepower electric motor and will be capable of delivering air or gas under high pressure.

Some operators in the Texas Panhandle fields are meeting with fair success in the application of the air or gas lift method of increasing the flow of wells. The Empire will test the possibilities of increasing its producton by this method. If results are sufficiently favorable, a larger installation similar to the one now being installed on the Empire-Lacy lease in Seminole County, Oklahoma, is contemplated.

LA.-ARK. WILDCATS

(Continued from Page 44)

Perritt are drilling No. 1 Levy, Section 13-20-14, at 1,500 feet. Tubbs and associates are at 1,900 feet in No. 1 Jacobs, Section 26-20-13.

Caldwell Parish

Humble Oil & Refining Co.'s No. 4-A Louisiana Central, Section 12-11-2e, is in shale at 1,860 feet. Southern Crude Oil Purchasing Co. has rigged up for No. 8 Caldwell L. & T. Co., Section 5-13-5e, but has not started drilling.

Claiborne Parish

El Dorado Chief Oil Co. is planning to abandon No. 1 McElwee, Section 13-22-7; depth of the hole is 3,040 feet. Magnolia Petroleum Co.'s No. 1 Lee, Section 16-22-8, is being drilled in lime at 3,070 feet.

DeSoto Parish

Craise & Hintze are at 3,205 feet, drilling in lime, in No. 1 Riggs, Section 27-14-13. Magnolia Petroleum Co. is rigring up for No. 1 Logan, Section 17-10-12. William Sebastian Syndicate has started No. 1 Sebastian, Section 11-10-13, having cemented the 10-inch casing at 144 feet. Seip and associates have shut down No. 1 Roberson, Section 18-10-12, Pleasant Hill district, with the hole at 300 feet. Exploration company is reaming No. 1 Moore, Section 12-11-6e, to set the 6-inch casing at 2,120 feet.

Grant Parish

Gulf Refining Co. is drilling at 1,658 feet in No. 1-B Swope, Section 1-9-1w. It topped sand at 1,540 feet. No. 2-B Swope, Section 12, is at 1,576 feet.

LaSalle Parish

Tunica Petroleum Co.'s No. 23 L. & A., Section 9-7-2e, is being drilled at 1,500 feet. The same company is drilling at 1,350 feet in No. 25 L. & A., Section 6-8-3e, having drilled out the 10-inch plug at 60 feet.

Natchitoches Parish

Gulf Refining Co. is rigging up for a test at No. 1 Cobbie Hardaman, Section 9-7-7w. Lawson & Pharris are washing to the bottom in No. 1 Clark Morse L. Co., Section 23-5-6w. Total depth is 2,528 feet. Ohio Oil Co. has started drilling in No. 1 Thomas, Section 23-13-6w. It is at 75 feet. H. O. Readheimer is reaming down in No. 1 Wafer, Section 3-11-8, to set 6-inch casing at 1,462 feet.

Red River Parish

Amerada Petroleum Corp.'s No. 1 Long Bell, Section 5-13-9, is drilling gummy shale at 2,655 feet. Gulf Refining Co. is starting drilling in No. 23 Kennedy, Section 24-13-11, and is at a depth of 90 feet. In Section 25, the Gulf is cleaning out No. 37, depth 2,518 feet. Magnolia

Petroleum Co. is waiting on a standard rig at 2,810 feet in No. 24 Polly, Section 6-12-10. Phillips Petroleum Co.'s No. 1 Long Bell, Section 16-12-8, is in gumbo at 2,182 feet.

Richland Parish

Gulf Refining Co. has completed No. 1 Marshfield, Section 30-17-6e, gauging 12,500,000 feet of gas at 2,397 feet. Ruston Drilling Co. has a 4,000,000-foot (estimated) gasser at 2,508 feet in No. 1 O'Neil, Section 35. The Gulf Refining Co. is drilling in gumbo at 1,830 feet in No. 2 Rhymes, Section 5-16-6e, and is rigging up No. 2 Seibert, Section 11-16-5e. In Section 36-17-5e, No. 1 Wayne L. & T. Co., is drilling in a salt water sand at 2,521 feet. S. D. Hunter is setting 4½-inch casing in No. 1 McCoy, Section 29-16-6e. This is because of a split joint of 6-inch pipe at 2,427 feet. The well came in gauging 13,500,000 feet of gas. Harry E. Oliver and associates are trying to set casing at 2,316 feet in No. 1 Richard Hatch, Section 2-15-5e. Ruston Drilling Co. is rigging up No. 1 Earle, Section 5-16-6e Stovall Drilling Co.'s No. 1 Mitchell, Section 20-17-6e, is being drilled at 2,068 feet. Texas-Louisiana Carbon Co. has cemented 6-inch casing at 2,268 feet in No. 1 Broughton, Section 1-15-6e.

Sabine Parish

Arkansas Fuel Oil Co. has cemented 6⅝-inch casing at 3,155 feet in No. 4 Logan, Section 33-10-12, and at 3,108 feet in No. 5 Logan, Section 28-10-12. No. 3 in Section 33 still has not been tested and bailed in due both to a gas leak from behind the casing and also to a legal question which has arisen. Casing in this test was cemented at 3,105 feet. Beckman & Freeman are drilling at 1,920 feet in No. 1 Logan, Section 26. L. M. Emlet is making arrangements to test the sand at 2,623 feet in No. 7 Bowman, Section 14-7-14. Magnolia Petroleum Co. has a derrick up for No. 1 Hall, Section 33-10-12. Same company's No. 1 Louisiana L. L. L. Co., Section 11-6-11, is in lime at 3,202 feet. Moffett and associates are at 2,060 feet in No. 1 Moore, Section 5-9-12. In Section 34-10-12, Ohio Oil Co. is drilling lime at 3,296 feet in No. 1 Cook Land Co.

Winn Parish

Greer & Gault have a rig up for a new test, No. 2 Bodcau, Section 9-11-4w. Humble Oil & Refining Co. has started drilling in No. 20 L. & A., Section 27-10-2w, and has cemented 10-inch casing at 79 feet. Ohio Oil Co. is making a Halliburton test of sand at 4,454 feet in No. 2 Edenborn, Section 4-12-1w. M. M. Roark is down 60 feet in No. 1 Southern Minerals Co., Section 19-11-3w. Standard Oil Co. is drilling hard lime at 3,649 feet in No. 1 Tremont, Section 1-12-2w.

ARKANSAS

Union County

Garrett Modisette Drilling Co. is at 3,355 feet in No. 1 Union Saw Mill Co., Section 7-18-13, Lawson Urbana district. Marine Oil Co. cemented 8¼-inch casing at 2,647 feet in No. 2-A Thompson, Section 10, and is arranging to lubricate in No. 1-B Winn Estate, Section 10. This well tested about 25,000,000 feet of gas with a heavy spray of salt water at 2,678-01 feet. Ohio Oil Co.'s No. 1 Crain, Section 1-17-14, for which arrangements have been made to abandon, started flowing 10,000 bbls. of salt water with a showing of oil but has mudded up and is waiting orders. It is at 3,014 feet. J. W. Olvey cemented 8¼-inch casing at 2,646 feet in No. 1 Simmons, Section 15-18-13. Rovenger Oil Corp.'s No. 1 McCain, Section 4-17-14, is drilling at 2,445 feet. Simms Oil Co. has a rig up for No. 1 Crawford, Section 14-18-13. No. 1 Ballard in Section 9 is shut down waiting orders at 2,556 feet. Superior Oil Co.'s No. 2 Cordell, Section 5, is being cored at 2,911 feet. It tested dry at 2,904 feet. Same company's No. 1 Jerry, Section 32-17-13, has been abandoned temporarily.

Ouachita County

A. T. Grayson cemented 6-inch casing at 1,744 feet in No. 1 Reyonlds, Section 21-14-17. J. G. Reynolds' No. 1 Chandler estate, Section 3-14-18, still is shu tdown waiting orders.

Clark County

Whelen Oil Co. is drilling at 550 feet in No. 1 Burrow, Section 35-10-20.

Columbia County

Colquitt & Thomas have started drilling in No. 1 Duffer, Section 23-18 19, and cemented the 12½-inch casing at 108 feet. Columbia Oil Syndicate's No. 1 Whitehead, Section 14-19-23, is drilling at 2,340 feet.

LaFayette County

Arkansas Fuel Oil Co. is drilling at 1,100 feet in No. 1 Duty, Section 11-19-25. It drilled out the 10-inch plug at 80 feet.

ARTESIA, N. MEXICO

(Continued from Page 48)

port, 7 miles southeast of Vaughn, work having been suspended at a depth of 1,300 feet.

The Davenport interests of Tulsa, are reported to have taken over the holdings of the Diamond Oil Co. and will complete the Duran well in Section 31-30-15. It was close to the town of Duran that the highest gravity oil ever found in the country was obtained, this being on the Melcor Luna ranch and testing 74 gravity.

Eddy County Drilling

Clark & Grimm's No. 1 Daugherty, NE SW, Section 3-17-27, underreaming 860 feet; Compton's No. 3 Mann permit, SE, Section 3-18-27, shut down at 400 feet; Compton's No. 2 State, NW, Section 2-18-27, drilling below 980 feet; Danciger Oil & Refining Co.'s No. 1, SW cor. SW, Section 23-17-27, location; Empire Gas & Fuel Co.'s No. 3-A State, NE NW, Section 2-18-27, on production; Empire Gas & Fuel Co.'s No. 1-B Russell, SE NE, Section 34-17-27, drilling at 1,640 feet; Hamilton Petroleum Co.'s No. 1 Billings, Section 12-19-26, shut down; Kelly's No. 1, Jim Berry permit, Section 27-17-27, drilling at 450 feet; Lackawanna Oil & Refining Co.'s No. 1, NE SE, Section 17-16-27, drilling at 1,800 feet; No. 7, C NW SE, Section 21-18-28, drilling at 2,142 feet; Marland Oil Co.'s No. 1 Hale, Section 11-20-30, drilling at 1,200 feet; Manhattan Oil Co.'s No. 1 Cronin, SE NE, Section 1-18-27, down 2,300 feet; Midwest Refining Co.'s No. 1 Terry, SW cor. NW, Section 5-18-26, setting casing at 600 feet; Ohio Oil Co.'s No. 1 Marland, SW SW, Section 13-22-29, drilling at 2,130 feet; Prairie Oil & Gas Co.'s No. 1 Keel, SE SE, Section 10-17-31, cleaning out after shot; Picher Oil & Gas Co.'s No. 4, NW cor. SE SE, Section 12-18-27, location; W. A. Stone Oil Co.'s No. 1 Hnulik, SW cor. NW NW, Section 25-17-26, drilling at 860 feet; Superior Oil Co.'s No. 1 SW NW, Section 33-23-28, location; Skelly Oil Co.'s No. 1 Lynch, Section 22-17-31, capped; Texas Production Co.'s No. 1, Robinson, NE SW, Section 25-16-31, spudding; Woolley & Jones' No. 1 McIntyre, C SE, Section 21-17-30, fishing.

Chaves County

Arena Oil Co.'s No. 1, SE, Section 24-12-30, moving materials to lease; Buffalo-Roswell's No. 1, Section 24-11-27, drilling below 4,035 feet; Delmar Oil Co.'s No. 1, Section 22-11-26, shut down plugging at 1,960 feet; Gibson Oil Corp.'s No. 1 Forsyth, C NE, Section 8-11-23, shut down at 675 feet; A. D. Morton's No. 1, SW SW, Section 28-11-23, location; The Texas Company's No. 1, Dunken Dome, SW, Section 29-17-18, drilling at 3,400 feet.

Lea County

Cap Rock Oil & Gas Co.'s No. 1 Leonard & Levers, SE, Section 11-16-32, underreaming 10-inch, salt at 1,011 feet; Covert's No. 1, NE NE, Section 15-21-23, underreaming at 1,875 feet; Exploratioin Co.'s No. 1, NE, Section 25-19-35, shut down for casing, Henderson, Dexter & Blair, Inc.'s No. 1 Wyatt, SW SW, Section 34-17-33, shut down at 4,700 feet, repairing rig; Inglefield & Bridges' No. 1, Section 4-17-34, drilling at 4,750 feet, 4,000 feet oil in hole; Maljamar Oil & Gas Corp.'s No. 1 S. S. Beardsley permit, SW SW, Section 15-17-32, ready to spud; Grace Mitchell's No. 1, SW cor., Section 5-17-32, swabbing; Ohio Oil Co.'s No. 1 William Mitchell, NE cor. SW, Section 18-17-32, fishing; Texas Production Co.'s No. 1 Jackson, SE cor, Section 4-20-34, rigging up; Texas Production Co.'s No. 1 Rhodes, NW, Section 22-26-37, spudding.

FARMINGTON, N. MEX.

(Continued from Page 44)

mit, SW SW, Section 24-30-9, drilling below 400 feet; Senate Oil Co.'s No. 1 Garland permit, Section 34-29-11, drilling at 1,750 feet; Southwestern Development Co.'s No. 1 Atteberry, Section 24-31-11, down 1,361 feet; Ross, Bloomfield Royalty Co.'s No. 1 Viles, Section 11-29-11, shut down temporarily at 2,630 feet; Portage Oil & Gas Syndicate's No. 2 Davis, NE SE, Section 24-30-13, underreaming at 1,923 feet; Ringle's No. 1, Section 26-27-31, down 325 feet; Continental Oil Co.'s No. 11 Table Mesa, Section 3-27-17, cemented 5-3/16-inch casing at 1,316 feet; San Juan Petroleum Corp.'s No. 1 Palmer, Section 17-29-13, underreaming, down 1,073 feet; San Juan Leasehold's No. 2 Bowman, NE, Section 30-30-15, drilling 913 feet; R. M. Smith's No. 2 James, NE SE, Section 9-30-11, spudding; Aztec Petroleum Co.'s No. 1 McCoy, NE SE, Section 9-30-11, operations suspended 1,200 feet; R. M. Smith's No. 1 Ranson, SE SW, Section 14-29-11, completed at 770 feet, initial production 8 bbls.; Coon, Hennis Syndicate's No. 1 Haren NW SW, Section 22-30-9 erecting standard rig; A. M. Edwards, Trustee's No. 1 Jackson, NE NE, Section 21-29-11, show of oil at 747 feet; W. R. Childers Oil Co.'s No. 1 Ute, Section 24-31-15, gas well at 2,130 feet; Continental Oil Co.'s No. 23 Rattlesnake, Section 12-29-19, drilling at 1,092 feet; No. 17 Rattlesnake, Section 2-29-19, down 3,785 feet; No. 20 Rattlesnake, Section 3-29-19, on production; Union Oil & Mining Co.'s No. 2 Pine, C SE SW, Section 8-29-9, oil show at 2,950 feet.

GULF COAST FIELDS

(Continued from Page 48)

At Blue Ridge, also in Fort Bend County, Gulf Production Co.'s No. 9-B Blakely is around 2,945 feet, and No. 15-C Blakely below 2,475 feet. No. 10 Luscher is at 1,700 feet, and No. 5 Invincible below 2,655 feet. A location has been made for No. 10 West-Schenck. Abercrombie Oil Co.'s No. 1-A Robinson, on the northwest flank of the dome, is at 3,910 feet, drilling deeper. No. 9 West-Schenck is at 1,010 feet, with a location for No. 3. The Navarro Oil Co. has a location for No. 2-B Robinson. The Humphreys Corp.'s No. 3 West-Schenck is below 1,465 feet. W. E. Woodruff's trustee, No. 1 Adams is around 700 feet.

In the West Columbia Pool in Brazoria County, The Texas Company's No. 51 Hogg is working over. A location has been made for No. 23 Arnold.

No development work of any kind has been done at Damon Mound, also in Brazoria County, for six months. Practically all the production is that of the Sinclair Oil & Gas Co. and the manner in which it holds up around 900 to 1,000 bbls. is a matter of comment among those who keep in close touch with production figures.

Harris County Pools

At Goose Creek, the Humble Oil & Refining Co.'s No. 56 Smith, on the east side, is at 4,235 feet, and No. 70 around 5,100 feet. No. 10 State land, in the bay, is deepening. No. 24 Beaumont, of the Gulf Production Co., also in the bay, is drilling at 2,980 feet. Gulf company's No. 7 Smith is around 2,345 feet. The Gulf Coast Oil Co.'s No. 15 Galliard is drilling deeper. The Lake Shore Oil Co.'s No. 3 Duke is at 3,325 feet. M. & B. Oil Co.'s No. 6 Scorrgea is drilling around 1,765 feet. F. F. Wilson has a location for No. 7 Busch, northwest of production.

In the Pierce Junction Pool, J. F. Basharn's No. 2 Bender is drilling deeper. Gulf Production Co.'s No. 1 Saunders is around 2,875 feet. The Marland Oil Co.'s No. 4 Prudent is at 3,934 feet. Lee and Woodard's No. 1 Settegast is deepening at 3,475 feet. M. Kouri's No. 2 Jones is at 3,135 feet, deepening. The Rio Bravo Oil Co. set casing in No. 3 Settegast at 3,490 feet. The Navarro Oil Co. has a derrick up for No. 2 Humble, and derricks are standing for the Humphrey Corp.'s No. 2 Leggett and Eunice and Carpenter's No. 2 Bullock-Nash. The above are all on the north-northwest flank of the dome. On the east side, the Texas Exploration Co.'s No. 10 Dooley is at 4,010 feet. Cullen and others' No. 8 Howe is around 3,945 feet.

Very little work is being done in the Humble Pool. The Texas Company's No. 20 House, on the north side of the San Jacinto River, is rigging. Benedum & Trees' No. 1 Hirsch is around 4,615 feet and drilling ahead. It is northwest of production. Barclay & Meadors' No. 3 Burt is preparing to test a sand.

Liberty County

In the Hull Pool, the Gulf Production Co.'s No. 83 Phoenix is around 3,354 feet. No. 84 Phoenix is at 3,910 feet and No. 85 is around 3,300 feet. No. 11 Thomas is at 655 feet. The Republic Production Co.'s No. 33 and 35 Dolbear are working over. The Texas Company's No. 2 Hannah is at 3,935 feet and No. 1 Armlin is around 3,675 feet. A location has been made for No. 7 Hannah. The Empire Gas & Fuel Co.'s No. 24 Barngrover is around 3,235 feet. The Hull Oil Co.'s No. 2 Harrison is deepening. The Mecom Oil Co.'s No. 2 Taylor is fishing.

In the South Liberty Pool, The Texas Company's No. 7 Staiti is at 3,170 feet. The Navarro Oil Co.'s No. 10 Harrison is bailing at 3,450 feet. West of the Trinity River, the Humble Oil & Refining Co's No. 7 Welder is deepening. The Gulf Production Co.'s No. 2 Marshall is around 1,700 feet. No. 1 Palmer is around 4,945 feet. No. 1 Bingle is drilling below 3,735 feet. The Associated Oil Co.'s No. 1 Hirschfield is below 3,765 feet.

Hardin County

The Texas Company's No. 3 La Jarza, a deep test on the east side of the Batson Pool is drilling around 4,619 feet. The Kirby-Capitol Oil Co.'s joint No. 7 Hodges, on the north side, is at 2,765 feet. In the old section, S. R. Buchanan's No. 92 Milhome is at 1,435 feet. The Deutser Oil Co.'s No. 1 Colorado is at 1,109 feet. The Gulf Production Co.'s No. 65 Choate is drilling below 1,100 feet and the Sterling Oil Co.'s No. 6 Hooks at 765 feet.

At Saratoga, the Sun Oil Co. set casing in No. 174 Texas Crude at 675 feet. The East Side Oil Co.'s No. 1 Ogden, on the southeast, is around 2,235 feet. The Rainbow Oil Co. has a location for No. 1 Cotton.

The activity in the deep sand section on the southwest side of the Sour Lake Pool has flattened out. Three months ago a score of wells were being drilled to the deep sands. Many were failures and the producers failed to hold up. Some of these were lower than 5,000 feet and will take a long time to pay out, if ever. The development work gradually declined until at present no tests are drilling. The Texas Company is drilling No. 1 Homestake around 1,100 feet.

Orange and Other Pools

In the Orange Pool, the Gulf Production Co.'s No. 3 Graner is at 4,135 feet. No. 11 Peveto is rigging. The Tillery Oil Co.'s No. 2 State land in Cow Bayou is at 3,325 feet. The Atlantic Oil Producing Co.'s No. 2 Moore is shut down at 3,375 feet. The Brownie Babbittee Oil Co.'s No. 12 McLean is around 4,165 feet. The Rex Petroleum Co.'s No. 14 Carbello is a location. The Texhoma Oil Co.'s No. 16 Chesson is deepening.

In the Markham Pool, in Matagorda County, the Powers Production Co.-Houston Gulf Gas Co's No. 3 Myers, on the west side, is drilling around 3,550 feet. The Rycade Petroleum Co.'s No. 3 Myers, on the southeast flank, is prepar-

ing to set screen and bail 28 feet of sand showing oil at 3,328-56 feet.

Gulf Production Co.'s No. 7 Smith, at High Island, is drilling below 2,745 feet.

At Barber Hill, Chambers County, the Humphreys Corp.'s No. 4-B Kirby is around 1,900 feet. Bennett Production Co.-Moody Oil Corp.'s joint No. 8 Japhet is at 2,875 feet.

The Rycade Petroleum Corp. has four wells drilling in the Nash Pool on the line of Brazoria and Fort Bend Counties, 12 miles north of Columbia. The Gulf Production Co. is drilling one well on the Moore land, in the Orchard district, a semipool 6 miles northwest of Rosenburg, Fort Bend County. These two companies hold all the acreage within the prospective limits of the two domes, which makes them exclusively single company propositions.

South Louisiana

The same statement made concerning the Nash and Orchard Domes can be applied to the Lockport Dome, a deep-seated saline proposition located near Lake Charles, Calcasieu Parish. The Vacuum Oil Co. and Gulf Refining Co. are developing there jointly. Their No. 7 Miller is deepening at 4,455 feet. No. 8 Miller is at 4,535 feet. No. 14 is drilling below 4,132 feet and No. 15 has just started rotating. No. 16 Miller is below 1,365 feet. No. 4-A Farquhar is at 4,545 feet and No. 5 is around 2,090 feet. No. 2 Friedberg & Wolf is at 4,435 feet. No. 2 Bordages is below 3,975 feet. A location has been made for No. 3 Bayou d'Inde.

In the Jennings Pool, the Gulf Refining Co.'s No. 41 Bright-Penn is drilling at 2,534 feet. The Rex Petroleum Co.'s No. 5 Hunter is at 3,780 feet. The Hercules Oil Co.'s No. 1 Paraffine is drilling around 1,565 feet. The Crotty Oil Co.'s No. 12 Lilliard will drill deeper. The Bolyard Oil Co.'s No. 4 Heywood is rigging.

In the Vinton Pool, the Edgerly Petroleum Co.'s No. 12 Vincent is drilling, as is the Vinton Petroleum Co.'s Nos. 7 Rescue and 19 Vincent. Marrs McLean's No. 4 Gray is at 3,107 feet. The Louisiana & Colorado Oil Co.'s No. 3 Johnson is at 2,235 feet.

In the Stark Pool, which like the Nash, Orchard and Lockport districts, is a one-company affair, the Gulf Refining Co.'s No. 5 Lutcher Moore Lumber Co. is drilling below 3,170 feet. No. 1 Industrial Lumber Co. is rigging. It is located 1,000 feet east from No. 5 Lutcher-Moore.

Miscellaneous—Coastal Texas

The Raccoon Bend district in Austin County, where the Humble Oil & Refining Co. and the Valley Oil Co. are drilling a wildcat proposition jointly, No. 2 Reese is reported showing for a small well at 1,024 feet. Same interests are bailing No. 3 Austin College at 960 feet. No. 2 Austin College is around 1,600 feet. No. 3 Thompson is preparing to set and cement casing. No. 1 Washington is at 1,075 feet and No. 1 Bellville below 1,680 feet. Green and others' No. 1 Mewis, east of Bellville, is drilling around 485 feet and Graves and others' No. 1 Cleveland, Hickory Mound, is repairing the rig and idle at 1,000 feet.

Brazoria County — Allen Dome: Roxana Petroleum Corp.'s No. 2 Reese is at 1,715 feet. No. 1 Bernard River is around 4,835 feet. No. 3 Allen set casing at 5,365 feet.

Clemens Dome: Roxana Petroleum Co.'s No. 2-A Pabst is drilling at 4,435 feet. No. 4 Clemens is at 3,995 feet. Stratton Ridge Dome: Humphreys-Pure Oil Co.'s joint No. 1 Armstrong is around 2,340 feet. Gulf Production Co.'s No. 2 Perry, on the south flank is at 600 feet. The Texas Company has a location for No. 2, east of Pledger, a new dome, geophysically located. Staley and others' No. 1 Glover, near Anchor, is drilling around 610 feet. The Pure Oil Co. has made a location near Pilant Lake, following geophysical testing.

Matagorda County — Hawkins Dome: Gulf Production Co.'s No. 8 Craig drilling at 4,235 feet. No. 3 Sanborn, rigged. No. 2 Parkinson is at 1,210 feet. No. 3 is a location.

Harris County—Hockley Dome: Humble Oil & Refining Co.'s No. 1 Warren is a location. Atlantic Oil Producing Co.-Simms Oil Co.'s joint No. 1 Burt & Griffith, 3 miles north of Humble, drilling around 2,560 feet in a water sand. Dr. P. S. Griffith's No. 2 fee, 12 miles north of Houston, is drilling at 3,128 feet. A derrick is up for the Juniata Oil Co.'s No. 1 Kitsman, 3 miles north of Cypress. Brain and others' No. 1, near Tom Ball, is a location.

Fort Bend County—Long Point Dome: This is another one company proposition, like others mentioned above. The Gulf Refining Co.'s No. 24 Davis there is drilling at 1,040 feet. No. 1 Wolff is at 864 feet. No. 2 Trone is around 779 feet. No. 4 Beard is drilling below 2,470 feet.

Jefferson County — Fannette Dome: Gulf Production Co.'s No. 10 Thomas bailed salt and sulphur water at 985 feet. Drilling deeper. Gulf company's No. 2 Bordages is drilling below 5,145 feet. No. 3 Bordages is around 3,678 feet. Edmund and others' No. 1 Port, north of Port Arthur, is rigging.

Liberty County — Moss Bluff Dome: Union Sulphur company's No. 5 Kyle is drilling at 645 feet. Barlow and others' have a derrick for No. 1 Minchliffe, near Excelsior.

Montgomery County—Brain and others' No. 1 Fitch, north of Spring, drilling at 2,109 feet. Beard and others' have a location 15 miles east of Conroe.

Washington County—Pratt-Hewitt Oil Co.'s No. 1 Koniecky shut down, as are Deware and others' No 1 Lehmann at 2,365 feet and the Schurenburg Oil Co.'s No. 1 at 310 feet.

Shelby County — Magnolia Petroleum Co.'s No. 1 Pickering Lumber Co., rigging.

Walker County—Thompson and others' No. 1 Thompson, shut down at 1,500 feet.

Coastal Louisiana

Assumption Parish — Union Sulphur Co.'s No. 1 school lands, fishing at 950 feet.

Cameron Parish — Hackberry Island Dome: Yount Lee Oil Co.'s No. 10 Gulf drilling around 3,200 feet. No. 6 school lands, drilling at 4,535 feet. A derrick is up for No. 4 State land. Union Sulphur Co.'s No. 2 Gulf is a location. No. 3 Gulf is at 455 feet. No. 1 Little is at 1,800 feet and No. 2 Vincent around 1,510 feet. Border Research Co.'s Nos. 1 in Sabine Lake and 1 Mallard Bay are both shut down.

Calcasieu Parish — Sulphur Dome: Union Sulphur Co.'s No. 720 fee is drilling around 3,900 feet. Border Research Co.'s No. 1 Calcasieu Lake is coring a sand at 3,610 feet, showing some oil.

Iberia Parish — Eagle Point Dome: The Gulf Refining Co.'s No. 1-Z State is making 400 bbls of water in addition to the 40 bbls. of oil it is pumping at 1,160 feet. A location has been made for No. 2-Z. Gulf's No. 1 Broussard is idle at 3,190 feet. The Calcasieu Oil Co.'s No. 1 Schwing is drilling around 2,310 feet. The Border Research Co.'s No. 1 Vermillion Bay is drilling around 700 feet.

Evangeline Parish—Pine Prairie Dome: The Texas Company's No. 2 Guillory is testing sand at 4,200 feet.

St. Martin Parish—Bowie Oil & Gas Co.'s No. 4 Begnaud is rigging. The Rycade Petroleum Co.'s No. 1 Atchafalaya is drilling below 3,780 feet. The Ohio Oil Co 's No. 3 Martin is idle.

St. Mary Parish—Border Research Co. set 16-inch surface casing in No. 1 West Cote Blanche. Same company's No. 1 Grand Lake is shut down at 4,205 feet.

Jeff Davis Parish—F. I. Getty's No. 1 Lacasine is drilling at 3,423 feet. The Estropal Oil Co.'s No. 2 Duex is shut down as is the Elton Oil Co.'s No. 1 Buller.

St. Landry Parish—Terre Bonne Oil & Gas Co.'s No. 1 Whitman and Bristol Oil & Gas Co.'s No. 1 Breaux are both idle at 2,065 and 3,015 feet respectively.

Orange County, Texas—W. C. Wells has a location for No. 1 Starks. Russell and others have a location for No. 1 Ochiltree, Adams Bayou, in the Gum Island district.

Colorado County — Geophysical tests are being made southwest of Weimar.

Fayette County—The La Fayette Oil Co.'s No. 1 Marquette is rigging.

Angelina County—The Roxana Petroleum Corp. has started No. 5 Long Bell Lumber Co. lands. Keiser and others' No. 1, 1 mile south of Yoakum, is drilling below 1,000 feet.

LOUISIANA-ARKANSAS

(Continued from Page 44)

sand at 2,692-2,712 feet. The bottom of the hole in No. 2-H Murphy has been cemented at 2,288 feet. O. G. Murphy had some trouble in No. 6 T. C. Murphy, same section, in an attempt to mill casing at 2,324 feet, and is milling casing at 2,260 feet. National Gas & Fuel Corp. also is arranging to mill casing at 1,300 feet in No. 4 Bilyew, same section. The 4½-inch casing is being set at 2,691 feet in Ohio Oil Co.'s No. 4 Murphy, same section. Peer Oil Corp.'s No. 1-B Palmer, same section, has milled casing at 2,341 feet and the owner is fishing for junk. Stewart and associates' No. 8 Murphy, same section, is being drilled at 2,100 feet. Sunny Jim Oil Co. has pulled 1,800 feet of 5⅞-inch casing and is arranging to shoot 6⅝-inch casing in No. 4 Flenniken. Total depth of hole is 2,442 feet.

In Section 10-16-15, Lion Oil & Refining Co. is pumping salt water in No. 9-A Flenniken and arrangements are being made to recement casing at 2,396 feet. In same section, Lion has a rig up for No. 11-A Lawton. Roxana Petroleum Corp. recemented 6-inch casing at 2,598 feet in No. 3-A Flenniken and is drilling out plug.

Magnolia Petroleum Co.'s No. 9 Murphy, Section 8-16-15, is being drilled at 1,530 feet. Same company's No. 6 Wilson, Section 17, is at 517 feet. In Section 8, National Gas & Fuel Corp. has a drill stem stuck in No. 4 Flenniken, depth 2,765 feet.

Louann District

In the Louann district of the Smackover Field, W. H. Gilliland cemented the 6-inch casing at 2,525 feet in No. 1-B Hodges, Section 1-16-17; total depth is 2,527 feet. Magnolia Petroleum Co. is at 650 feet in No. 2 Crawford, Section 8-16-16. The 10-inch plug was drilled out at 276 feet. No. 3 Freeman in Section 7 also is being started, the 10-inch casing being set at 275 feet. Same company is bailing No. 4 Saxon in Section 5, sand at 2,253-60 feet, and building a derrick for No. 1 Union Lumber Co., Section 21. National Consolidated Petroleum Co. cemented the 6-inch casing at 2,628 feet in No. 2 Fagg, Section 8.

Ouachita County

Four completions were reported in Ouachita County. One of these, Gulf Refining Co.'s No. 25-A Umstead, Section 33-15-15, Norphlet area of Smackover, is pumping 205 bbls., 40 per cent salt water, from sand at 2,373-84 feet. The other completions were in the Louann district. W. R. Keever's No. 2 Hicks, Section 27-15-16, is pumping 7 bbls. at 2,015 feet. Magnolia Petroleum Co.'s No. 4 Smith, Section 36-15-17, is pumping 7 bbls. at 2,277 feet, and Middlesex Oil Co.'s No. 4 Shirey, same section, is pumping 30 bbls. from broken sand at 2,281-94 feet.

In the Norphlet area. Gulf Refining Co.'s No. 10 Bennett, Section 33-15-15, is waiting on a standard rig at 2,358-64 feet with 800 feet of oil in the hole. A derrick has been started for No. 11 Bennett, same section. Also in same section, Sunny Jim Oil Co. is drilling at 4,195 feet in No. 12 Berry. In Section 31, Texas Pacific Coal & Oil Co. is drilling at 2,475 feet in No. 9 Laney.

Imperial Oil & Gas Producing Co. cemented 4¼-inch casing at 2,656 feet in No. 9 McClanahan, Section 8-16-15, also in Norphlet area. Marin Oil Co. is drilling at 2,165 feet in No. 11 Umstead, Section 5. Unity Petroleum Co. will test sand at 2,649-60 feet in No. 1 Murphy, Section 2. The 4¼-inch casing was cemented at 2,642 feet.

Keever and associates cemented back No. 1 Hicks, Section 27-15-16, to shut off salt water at 2,290 feet. This is in the Louann sector of the Smackover Field.

In the Stephens Pool, Magnolia Petroleum Co. recemented 8¼-inch casing at 1,542 feet in No. 2 Gosden, Section 15-15-19. The test is shut down waiting orders. Same company has a derrick up for No. 1 Morgan, Section 7. Wesson and associates cemented 6⅝-inch casing at 2,123 feet in No. 1 Culp, Section 22.

Nevada County

Autrey Oil Co. has a 30-bbl. pumping well in No. 2 McKinney, Section 9-14-21. Sand is at 1,202-10 feet. This was Nevada County's only completion. Holmes and associates' No. 1 Wallace, Section 11-14-21, has been shut down at 1,200 feet. Humble Oil & Refining Co. also has shut down No. 4 Bodcau, Section 9-15-22, depth 3,606 feet. Martin and associates are waiting on a standard rig for No. 1 Haynie, Section 6-14-20. It has a hole full of oil from sand at 1,155-60 feet.

CANADIAN FIELDS

(Continued from Page 55)

16, Section 1-20-3w5, offsetting McLeod No. 2, is at 405 feet and drilling. Home Oil Co. No. 1, LSD 10, Section 20-19-2w5, is at 3,720 feet and drilling, with the 10-inch casing hanging above 500 feet of open hole.

Imperial-Millarville No. 1, SW, Section 26-20-3w5, is building camp and hauling materials. A rotary outfit may be used for this test.

Turner Valley

With four wells, the Royalite No. 4, Illinois-Alberta No. 1, Vulcan No. 1 and McLeod No. 2 in the deep production, the Turner Valley drilling has reached a stage where a number of other tests are near the top of the deep lime. Dalhousie No. 1 at 3,595 feet is probably the closest to the Madison, though a number of other tests have a greater footage. In the British Dominion-Great West area, Sections 7-20-2w5 and 5-20-2w5, there are four exceptionally deep holes that apparently have not yet got the limestone. Great West No. 1, SE, Section 7-20-2w5, is reported drilling at 5,475 feet, being, in point of footage, the deepest hole in the Turner Valley Field; while British Dominion No. 1, LSD 4, Section 5-20-2w5, is at 4,900 feet and drilling. Cooper-Nanton Oils, LSD 2, Section 7-20-2w5, at 4,840 feet, and Big Chief No. 1, LSD 3, Section 5-20-2w5, at 4,340 feet are both temporarily shut down. These tests are evidently drilling at a low point on the very steep structure. The Great West No. 1 at 5,475 feet is thought close to the lime.

Higher on the structure, apparently, are a number of tests that should get the lime with a very little more drilling and should be in production early this season. These include Dalhousie No. 5, now at 3,665 feet; Home No. 1, at 3,720 feet; Royalite No. 6, at 3,114 feet; and Stockmen Oils, No. 1, at 3,850 feet. Several other tests are close to 3,000 feet. If general expectations are realized, completions by July 1 may come close to doubling the Turner Valley production.

Justice Ford of Calgary has issued an order appointing P. F. Patterson receiver of the Alberta Petroleum Consolidated, Ltd. This step was taken as the result of an application launched by former shareholders of the company, which has been defunct for several years and has made no returns under the Companies' Act since December 31, 1915. The Alberta Petroleum Consolidated, Ltd. capitalized at $2,000,000, was a merger of a number of companies formed at the time of the Calgary boom. It drilled at least one well which got a small commercial production in the Dakota sand. Later the company was wound up; but following the recrudescence of interest in the Turner Valley Field a year ago, dissatisfied shareholders claimed that the winding up procedure was irregular and are endeavoring, through the receivership proceedings, to revive and reorganize the company.

Alberta Pacific Consolidated Oils, Ltd. of Calgary held its annual shareholders meeting at Calgary recently, when the following officers were re-elected: President, Dr. A. B. Singleton; vice president, H. J. Glass; secretary-treasurer, A. G. Clark; directors, Dr. William Hackney,

F. T. Wright, I. W. McArdle, James Dumma. Mr. Dumma represents the British shareholders of the company. Alberta Pacific Consolidated was originally a merger of five companies formed at the time of the 1914 boom; the Acme, Alberta Pacific, Commercial Oil & Gas, Ottawa Petroleum Products and Millarville Oils. The company is capitalized at $5,000,000 with 1,500,000 $1 shares issued. It has done no drilling for some years but has kept its holdings intact. These include 4,100 acres in the Turner Valley Field and the Jumping Pound, Wainwright, Moose Mountain and Milk River districts. In the past season its Turner Valley leases have been tested by three companies, the Home Oil Co., Advance Oil Co. and Dallas Oil Co. The Dallas test was abandoned and a new test located; while the Home Oil Co. took over the Advance holdings and unfinished well, and is now completing its own No. 1 deep test before going on with the Home No. 2 and Advance tests. In the Milk River Field, a location has been made this season by Alberta-Flathead Oil Co. on the Alberta Pacific leases, in NE. Section 31-2-15w4. This test will spud in early this spring. Negotiations are now in progress with a view to the development of other Alberta Pacific holdings in the Milk River district. No drilling will likely be done by the Alberta Pacific itself till some of its acreage is proved by other companies.

Moose Mountain

In the Moose Mountain Field, Signal Hill Oil Co. No. 2, LSD 9, Section 34-23-5w5, has resumed drilling after cementing the 12½-inch casing at 770 feet.

In the Bow Island Field, the Imperial Oil, Ltd. Burdett No. 1, Section 8-11-11w4, looks considerably like a failure. The test is reported drilling at 3,950 feet in an anhydrate in the Silurian formation, with very little if any of the Devonian formation shown. The log of the well is reported to show a similarity of formation to that in northern Montana, where the Ellis sandstone of Jurassic age is 200 to 220 feet deep, below which is the Madison limestone of the Lower Mississippian which is 770 feet thick. Below this in Montana lies the Devonian 320 to 350 feet in thickness, comprising two strata, the Three Forks and the Black Dolomite. In the Burdett well, while the other formations approximate those in Montana, there is apparently no Devonian. The Madison lime was 870 feet thick in the Burdett, finishing at 3,780 feet. At 3,340 feet a faint showing of very light oil was struck in the Madison, apparently in a horizon corresponding to the crude naphtha horizon in the Madison limestone of the Turner Valley. There was also a small show of oil in the Ellis sandstone at 2,912 feet. The Imperial-Burdett is now thought to be drilling about 1,600 feet above the Pre-Cambrian rocks.

Border Field

In the Border Field, east of Coutts, Imperial-Erickson Coulee No. 1, LSD 13, Section 8-1-12w4, is drilling at 3,570 feet after passing through 830 feet of limestone, apparently the Madison. No oil has yet been struck. In the Sunburst sand at 2,320 feet a gas flow was met, measuring about 7,000,000 feet a day. This was cemented off, and a second flow of gas, with a high sulphur content, was struck in the lower Ellis sand at 2,537 feet, making about 1,000,000 feet a day.

In the Ribstone-Blackfoot area, East Central Alberta, Imperial-Ribstone No. 1, Section 5-45-1w4, is drilling at 2,780 feet. Samples taken at 2,601 feet showed that the drill was then in a Palaeozoic limestone of undetermined age, apparently Devonian. The lime cores, slightly darker than those of the higher levels, show a number of fossil rings between 2,578 and 2,601 feet. These fossils, taken from the lowest level geologically yet reached by drilling in Alberta, are too large to have any relation to oil deposits. There is a possibility that the lime at the lower depths in the Imperial-Ribstone No. 1 is Triassic or Madison; but it seems more likely that the Cretaceous formations at Ribstone rest on the Devonian lime, as in the McMurray area.

In the Jumping Pound district west of Calgary, Imperial-Bow River No. 1, LSD 15, Section 12-25-5w5, is at 5,080 feet and again running 6¾-inch casing. In the Highwood district, Imperial-Highwood No. 1, LSD 3, Section 36-18-3w5, is at 2,075 feet and drilling, and carrying down 12½-inch casing.

Ribstone Field

In the Ribstone Field, Ribstone Oils, LSD 1, Section 1-46-1w4, has resumed drilling at 1,090 feet. Advance Oil Co. No. 3, LSD 1, Section 16-45-1w4, is shutting off the surface water with 15½-inch casing preparatory to resuming drilling at 504 feet.

In the Foremost Field, Devenish Petroleum's LSD 5, Section 27-5-14w4, is reported to be resuming at 2,330 feet after being shut down for the winter.

On the Quarantine Reserve, near Coutts, the Urban Oils, Section 4-1-15w4, at 3,420 feet failed to get commercial production following a shot and has been abandoned. At about 3,377 feet the drill encountered what looked like a tight oil sand and is reported to have got 1 bbl. a day or better by bailing. This sand was shot with 80 quarts of nitroglycerin. When the well was cleaned out, however it failed to develop enough oil to make a measurement. There was a heavy water seepage from an horizon 150 feet above the bottom. The well log is as follows:

Milk River sandstone	Surface feet
Colorado Shales	125
Kootenay	1,900
Ellis Sand	2,355
Madison limestone	2,535
Carboniferous limestone	3,377
Devonian shales	3,409

It is possible that Urban Oils, Ltd. may drill another test at a point higher on the structure.

In the Pincher Creek district, Mount Royal Oil Co., LSD 4, Section 7-6-1w5, on the Mill Creek structure has drilling rig on location and is waiting for derrick timbers. The test will spud in early in April. Mount Royal No. 2 is spotted in SE. Section 15-6-1w5. It is reported that other interests are arranging for a third test in the Pincher Creek area; and that the Henry L. Doherty Co. will either co-operate in the drilling of one or more of the tests already located or will start an independent test.

In Saskatchewan, the Prudential Oil Co. of Moose Jaw will drill a test this season 60 miles south of Moose Jaw and not far from the international boundary. A structure has been defined passing a little west of Verwood.

In the Aldersyde district, Alberta, Ranchmen's Gas & Oil Co. LSD 16, Section 13-20-29w5, is reported drilling at 400 feet.

SOUTHWEST WILDCATS

(Continued from Page 53)

No. 1 Leigh, at Center Point, that has been of considerable interest, is down around 2,100 feet and, according to some geologists, has been in Ellenberger since about 1,800 feet. It is claimed Ellenberger is producing in some spots, but the well in Kerr County is not encouraging in Ellenberger. The Pennsylvania was found at 680 feet and production was being looked for in it. Drilling is continuing and it may later be decided to shoot the well at around 1,600-1,800 feet.

Wheless & Peters' No. 1 Berger in Medina County got sulphur water with the hole 25 feet in the Edwards at 1,315 feet. It is in Medina County in the William Teel Survey, a few miles northwest of Castroville.

Wildcat Completions

In wildcat completions the past week Sun Oil Co. abandoned its No. 1 Scott in Terrell County at 4,015 feet and will plug. Flynne Brothers have abandoned their No. 1 Carter, in Caldwell County, at 2,530 feet, deepened to the Edwards lime. Dodwell abandoned his No. 1 Lawler at 2,570 feet in Caldwell, on the south end of the Dale structure. Adams is drilling at nearly 2,000 feet in his No. 1 Ellison, a little farther southwest, and has not encountered the chalk and the well does not look very favorable. Pat Armstrong has abandoned his No. 1 Lacey and No. 1 King in Medina County,

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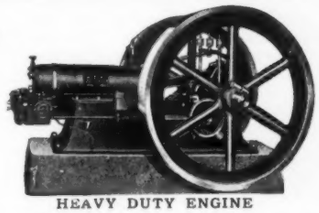
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north of Hondo, the first at 550 feet and the second at 950 feet.

Duval County

George B. Pickett has made location on the Ball ranch in NW cor. for No. 1 Ball. Humble Oil & Refining Co's. No. 12 Singer, Survey 4, located 2,600 feet to north line and 2,000 feet to west line, is drilling at 876 feet. Humble-Reiter-Foster's No. 4 Kohler, Survey 400, located 660 feet to SW cor., at 2,339 feet tested dry; No. 5 Kohler, Survey 395 located 1,080 feet to east line and 530 feet to south line, is rigging up. Magnolia Petroleum Co's. No. 1 Hahl, Survey 51, located 330 feet to SW cor., at 4,070-90 feet came in making 1,000,000 feet dry gas. Humble Oil & Refining Co's. No. 2 Welder-Wood, Survey 102, located 5,280 feet to south line and 4,500 feet to east line, is moving on.

Jim Hogg County

Holden and others' No. 3 Jones, Share 27, Block 136, located 330 feet to NE cor., is drilling at 1,360 feet. Harry Hamilton and others' No. 1 Holbien, Block 44, Hamilton Subdivision, located 158 feet to south line and 363 feet to west line of R. Holbien land, is drilling round 1,100 feet.

Webb County

Cin-Tex Petroleum Co.'s No. 1 Peal, Leaseholder Pool, Survey 72, Block 5, located 150 feet to SE cor., has been spudded in. Rio Grande Oil Co. is moving in tools to resume drilling at 1,600 feet in the No. 1 Urbahn in Santo Tomas Tract. Rawlins & Pelton's No. 1 Garcia, Survey 736, Block 6, located 150 feet to SW cor., is drilling at 1,600 feet. O. W. Killam's No. 1 Billings, SE NW Survey 43, located 150 feet to south line and 750 feet to west line, is drilling at 1,985 feet.

Zapata County

Earl K. Bateman has made location in Share 2, El Crullo Grant for No. 2 Sorapio Vela. Mission Oil Co's. No. 1 Slator, Borrego Survey, Block 16, located 4,577 feet to southwest lines and 11,853 feet to southeast lines, is drilling at 1,508 feet. Fred Thomey and Edouard Raymond are to start drilling April on the Uribe Grant. Buffalo Erie Syndicate is skidding derrick in Block 2, of R. V. Hill Subdivision for No. 3 Martinez. The Texas Company is moving on for No. 5 Jennings in Cerrito Blanco grant, 10,700 feet to southeast lines and 4,750 feet to southwest lines.

Starr County

Milham Corp's. No. 1 Guerra, Porcion 107, located 14,520 feet to south line and 1,320 feet to east line, is drilling at 2,575 feet; No. 2 Salinas, Porcion 111, SE cor., is drilling at 2,596 feet. Sterling & Suladie's No. 1 Yzaguirre, Block 8, Sterling & Suladie Subdivision is drilling at 2,900 feet.

Atascosa County

Location has been made in J. W. Cooper Survey by the Grayburg Oil Co., for No. 27 G. W. Caruthers, location 845 feet to east line and 825 feet to north line; location has also been made in Survey 1,172 at 1,465 feet to west line and 740 feet to south line, for No. B-21 Hartung.

Bexar County

J. Clutter's No. 15 fee, Gas Ridge, has been completed at 792 feet making 84,000 feet of gas and No. 14 Fee also at Gas Ridge at 824 feet has been completed making 151,000 feet of gas. Location has been made by Associated Petroleum Co., for No. 1 Ernest in Survey 226 at 360 feet to north line and 150 feet to east line; and also for No. 13 Caruthers in William Caruthers Survey, 503 feet east of No. 12. Marland Oil Co. is moving in rotary rig to test in No. 1 San Antonio Trust in J. Pickins Survey Block 1, located 2,280 feet to east line and 1,528 feet to south line, total depth 1,600 feet. A. R. Beal, trustee, No. 1-A Ackerman, Survey 133 1-2, at intersection of St. Hedwig and White roads, has drilled through rock and set surface casing, with depth below 100 feet.

Bee County

Nichols & White's No. 1 Hicks, Hicks-Ball Survey, Block 19, NW cor., is shut down at 821 feet.

Fred Adams No. 1 Walter Ellison is drilling at 1,300 feet. Sutton & Smith's No. 2 Robert Carter, G. Hinde Survey, on Plum Creek, at 2,345 feet are in top of the Austin chalk and testing. L. I. Dodwell's No. 1 Lawler, James Pinchback Survey, 750 feet north line and 150 feet to east line, has been abandoned at 2,570 feet, with Edwards lime topped at 2,566 feet. Flynne Brothers' No. 1 Carter, 4 miles south of Lytton Springs, has been abandoned at 2,550 feet with Edwards topped at 2,235 feet.

Bastrop County

The Texas Company's No. 1 Goertz, J. Lentz Survey No. 349, located 200 feet to west line and 150 feet to south line, has been spudded in.

DeWitt County

McNeil & Matthews' No. 1 A. D. Kaiser, A. Dillard Survey, 1,508 feet to NW cor., is drilling at 1,000 feet. Yoro Development Co. has derrick up for No. 2 well, located one mile from No. 1 Tom Burns, and across the railroad tracks. Empire Southern Oil Co's. No. 1 Smith, 8 miles southwest of Cuero, is bailing at 2,441-56 feet.

Dimmitt County

Humble Oil & Refining Co's. No. 1 City National Bank, Survey 654 located 700 feet to north line and 2,000 feet to east line, is drilling at 1,620 feet.

Frio County

P. A. Neilan's No. 1 Blackaller, James Gouley Survey, has gone over 6 5-8-inch casing pulled in two by using 8 1-4-inch and is down 800 feet.

Fayette County

La Fayette Oil Co's. No. 1 Aug Marquardt, J. R. Phillips Survey, 976 feet to northwest lines and 400 feet to southwest lines, is drilling at 460 feet.

Gonzales County

Frank Sterns' No. 1 Ramsinsky, is location. Bristol Oil & Gas Co.'s No. 2 Denmann, A. Zumwalt Survey, is shut down at 807 feet. E. Lee Moore's No. 1 Elder, is drilling at 2,240 feet. Joe Bruner's No. 1 Vaughan, Kent Survey, at 200 feet to west line and 300 feet to south line, is shut down for repairs at 1,406 feet. C. A. Campen's No. 1 Lamkin, 2 1-2 miles from Waelder, is shut down at 2,275 feet.

Guadalupe County

Magnolia Petroleum Co.'s No. 6 Roberts, H. Cottle Survey, 600 feet northeast of No. 5, is drilling at 2,035 feet; location has been made in H. Cottle Survey, 500 feet northeast of No. 2, for No. 3 Carter. F. G. Blumberg's No. 1 Angelke, H. Cottle Survey, Blocks 7 and 8, at 450 feet to northeast and 184 feet to northwest lines, is to be abandoned and another test drilled. Pat Armstrong's No. 1 Dale is shut down in chalk at 1,625 feet. F. A. Lain's No. 1 Weinert W. K. Estell Survey, located 150 feet to center of north line, has set 10-inch casing at 400 feet.

Hays County

J. E. Rodgers is moving in rig purchased from Border Oil & Gas Co., on Somerest road to resume drilling in No. 1 Hohenburg, 2 1-2 miles east of San Marcos, which has been shut down at 1,120 feet.

Karnes County

Earl B. Reynolds' No. 2 Butler, Block 43, located 1,000 feet south of No. 1, is being put on pump at 1,947 feet. Alamo Drilling & Leasing Co.'s No. 1 Szalwinski, L. Manchaca Survey, 500 feet to northeast lines and 200 feet to southeast lines, has been spudded in.

Kerr County

Walker-Van Duyn's No. 1 Leight, Survey 38, located 500 feet north of river and 150 feet south of railroad, is now at 2,090 feet in the Ellenberger, which was probably encountered at 1,800 feet with the Pennsylvania since 680 feet.

Kinney County

W. A. Stephens and others' No. 1 Jim Clamp, John Winters Survey 346 center of survey, has been spudded in. Havelin Oil Co.'s test, 18 miles from Del Rio, is fishing for bailer at 4,305 feet in black shale.

Lavaca County

Steinman Brothers' No. 2 Steinman fee, 4 miles southeast of Yoakum, is drilling at 800 feet.

Lampasas County

J. B. Davis-Lee Bullock's No. 1 Bunch, 8 miles north of Lampasas, has derrick up and moving in rig. S. L. Smith and others' No. 1 Faught, 2 miles from Nix, is drilling in sandy shale at 175 feet.

Lee County

E. P. Edwards-Bob Plunkett's No. 1 Adolph Wachemann, Thomas Kinney League, three-fourths mile west of Monheim, is in shale at 2,130 feet with trace of oil, and with gas raising the fluid about 2 feet. M. O. Ricketts and others' No. 1 Saunders, Joseph Maxmillian League, 250 feet to SE cor., is drilling at 300 feet.

Live Oak County

W. S. Stovall-W. W. Kelly's No. 1 Stewart, William J. Canno Survey, 200 feet west of Nueces river and 200 feet south of Lagarto creek, is preparing to drill. Warren Wood Hunt has made location for No. 1 B. McNeil in Jane Curry Survey, 4,000 feet west of northeast corner and 3,000 feet southeast of northwest lines. Houston Oil Co. has derrick up for No. 17 Cartwright, 1,500 feet southwest of No. 1 Riverbed; No. 1 Dunning, M. K. Kivlin Survey, has set 12 1-2 inch surface casing; No. 1 Sellers, McMullen Survey, 2,453 feet east of No. 2, is drilling at 1,550 feet. J. W. Walton's No. 1 Roberts, west of Three Rivers, at 1,740 feet has had four sands, all of which tested a little gas.

Medina County

Yantis and others' No. 1 Chandler, Durst Survey No. 13, located 2,150 feet to north line and 2,742 feet to east line, has set casing at 957 feet. Western Gas & Fuel Co., and C. E. Lange's No. 4 Adams has set casing at 944 feet and is ready to drill in. Witherspoon Oil Co.'s No. 2 Redus, Survey 92, has set casing at 910 feet; No. 1 Nixon, Survey 119 has been spudded in. R. P. O'Brien No. 1 Nixon, Survey 531, SE cor., is on hard rock at 195 feet. Fennell & Williams' No. 1 John Fohn, Survey 115, located 300 feet to south line and 175 feet to east line of east 100 acres, at 885 feet took 3-foot core having saturation of oil. Medina Oil Co.'s No. 11 Taylor, Survey 135, located 287 feet southeast of No. 10, at 351-74 feet is a 5-bbl. well and is to be shot with 10 quarts of nitroglycerine. Johnson's No. 1 Mumme, Survey 100, due west of the shallow pool moved off rig, and will move in new one soon, total depth 1,100 feet. J. H. Gray and others' No. 1 Mann, Survey 16, located 350 feet to north line and 350 feet west of river, at 1,000 feet has set 6 5-8-inch casing and will drill out plugs and then set perforated liner. J. A. Swayze's No. 1 Offingers, Survey 129, Block 22, is drilling around 300 feet. Ina Oil Co.'s No. 2 Fingers, Survey 746, Block 5, located 1,525 feet to north line and 2,794 feet to west line, is drilling at 1,150 feet. Cecil Switzer's No. 1 Zerr, Survey 459, west central part, at 2,760 feet is setting casing to shut off cave and water. J. J. Wheless-E. T. Peter's No. 1 Berger, Survey 341, is drilling at 1,265 feet in the Georgetown topped at 1,255 feet. Pat Armstrong's No. 1 Lacey, Survey 427, has been abandoned at 550 feet; No. 1 Long, King Ranch has been abandoned at 950 feet.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 1 Indio, Bryan Survey No. 14 central, is drilling. Rycade Oil Co.'s No. 1 Chittim, has hole clean after three months fishing job and resumed drilling around 5,525 feet; No. 2 Sullivan is drilling below 3,400 feet.

McMullen County

George Pickett's No. 1 Jacobs, Survey 7, located 660 feet to CNL, has set surface casing at 176 feet. Dodson and others No. 1 Franklin SW Survey 31 is shut down. Houston Gulf Gas Co.'s No. 5 Jacobs, J. Rees Survey, located 600 feet to north line and 2,500 feet to west line, is standing at 904 feet. George M. Ball's No. 1 Kuykendall, Block 7, located 300 feet to south line and 600 feet to east line, is standing at 1,390 feet.

Nueces County

Pearson and others' No. 1 John Dunn, south side of bay at 2,363 feet is on a gas sand. W. L. Pearson has derrick up for No. 1 Weil, near the Saxet wells which are producing gas for Corpus Christi.

San Patricio County

F. S. Smiley has derrick up for No. 1 A. E. Wilson, one-fourth mile northwest of Angelita. W. L. Pearson and others' No. 4 Cage, Rachall Survey, 1,200 feet north of No. 2, has casing at 2,140 (corrected depth) and is waiting to test; No. 5 Cage has been completed making 40,000,000 feet of gas. Huber-Crawford's No. 1 Mathis, Block 17, Meedgen tract, Delgavo Survey, 300 feet to northwest lines and 2,500 feet to southwest lines, is standing at 1,400 feet. John Sigmund's No. 7 McCampbell has been spudded in.

Wilson County

Thomas and others' No. 1 Haese, Survey 124, located 300 feet to NE cor. is rebuilding derrick. Gibson Oil Corp. has resumed work on the No. 1 Julius Espey, Arocha Grant.

SOUTHWEST TEXAS FIELDS

(Continued from Page 53)

Block 19, is drilling at 3,035 feet. Mims & Putman's, trustee. No. 1 de la Garza, Survey 47, located 870 feet to north line and 1,170 feet to west line, is on sand at 2,470 feet.

Charco Redondo—Zapata

Harling Oil & Gas Co.'s No. 5 Martinez, near Corrigan ranch, is drilling at 650 feet. Charco Redondo Oil Co. has made location for Nos. 65 and 66 in C. Redondo Survey.

Luling Field—Caldwell County

North & South's No. 1 Kelley is drilling at 6,610 feet; No. 1 Tiller drilling at 6,100 feet, both deep tests and headed for 8,000 feet. Magnolia Petroleum Co.'s No. 18 Trammel, Reaville Survey, 200 feet to SE cor., is drilling at 850 feet; No. 14 Proctor, J. Henry Survey, 300 feet southwest of No. 9 is drilling at 1,400 feet; No. 20 Maggie Moore J. Henry Survey 300 feet southwest of No. 12, is drilling at 2,061 feet; No. 27 W. H. Tabor, Reaville Survey, 300 feet northwest of No. 4, is drilling at 2,040 feet; No. 17 Alf Mercer, Reaville Survey, 800 feet northwest of No. 9, at 2,104 feet has been completed 25 bbls.; No. 15 A. H. Shubert, at 2,104 feet has been completed making 20 bbls.; No. 6 Roberts, H. Cottle Survey, located 600 feet northeast of No. 5, is drilling at 2,035 feet; location has been made in H. Cottle Survey, 500 feet northeast of No. 2, for No. 3 Carter. F. G. Blumberg is to abandon No. 1 Angelke in H. Cottle Survey Blocks 7 and 8, which at 2,260 feet made oil water, and drill another well.

Kingsville Field—Kleberg County

A. C. Erwin's No. 7 Kivlin (fee) Lot 7, Section 5, located 660 feet to SE cor., is shut down at 710 feet. Humble Oil & Refining Co.'s No. 3 Kleberg Trustee, Lot 1, Section 40, located 150 feet to NW cor. is setting 6⅝-inch casing at 2,635 feet on hard rock; No. 1 Kleberg, trustee, Lot 8 Section 40, located 150 feet to NE cor., is drilling at 1,900 feet; No. 3 King has derrick up 500 feet north of No. 2 King; No. 3-A Dennett is rigging up in NW cor., of Lot 2, Section 39; and No. 1 Kivlin is rigging up in NW cor., of Lot 5, Section 39. Carter-Walsh's No. 1 Flato Lot 29, King land, located west of Humble's No. 2 State, is drilling at 500 feet.

Rockdale Field—Milam County

Coffield & Hale's No. 2 John Hicks, west of No. 1 is moving in rig. Noack Oil Co.'s No. 4 J. B. R. Smith, T. J. Chambers Survey, 150 feet to north line and 450 feet to east lines, is drilling at 1,355 feet. Kent & Middleton are rigging up for test on the Henne-Meyer tract, just south of the city limits. Chicago Oil & Land Co.'s No. 3 Gambill, D. A. Thompson Survey, is drilling at 700 feet and No. 4 Thompson in same Survey, 300 feet east of No. 2, is drilling at 700 feet. Fritz Fuchs No. 2 Lon Hudson, T. S. Arnett Survey, is running casing. Rockdale Oil Co.'s No. 1 Lon Hudson, NW cor. of lease, has set and cemented casing. Kent & Middleton's No. 1 Bartlett, western edge of field, has set and cemented casing.

Refugio Field—Refugio County

Coast Gas Co.'s No. 5 Shelly, Refugio Survey, Block 144, located 330 feet to north line and 660 feet to east line, is drilling in. Houston Oil Co.'s No. 10 J. J. Heard, Refugio Survey, 592 feet north-

(Continued on Page 151)

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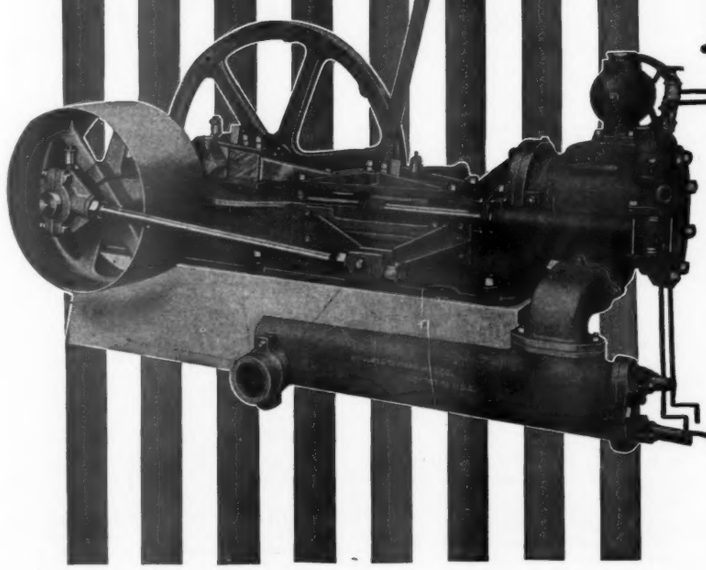

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DRILLING BLOCK secured on approved acreage and well supervised; no bonus; we keep some acreage as fee. Nicolle, Petroleum Geologists and Operators, Box 1720, Fort Worth, Tex.

FOR SALE—Ten year leases, fifty cents rental, in Alfalfa County, Okla. Write for list. Mansfield & Brakey, Cherokee, Okla.

LEASES—PRODUCTION

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We are now drilling test in Castro County, Texas. Standard tools. Well below 400 feet. We own every lease offered for sale. Buy a lease now.

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222 Askew Bldg Amarillo, Tex.

FOR SALE—160-acre Oil Lease in Chelsea-Nowata Field. Has eight wells with five-bbl. production in Bartlesville sand. Lease fully equipped with power and tanks. Owned by St. Louis parties. Priced for immediate sale. If interested, call John Macklin, Chelsea Hotel, Chelsea, Okla.

NOW is the time to buy cheap, well-located leases, drilling blocks, royalties and mineral fee in west Texas. I can supply your wants. Have had four years' experience in this area in land department for major companies and two years for myself.

G. H. AMERY
515 Rust Bldg., San Angelo, Tex.

SOUTHWEST TEXAS — WINKLER, Loving, Reeves, Ward, Pecos, Culberson Counties.
Drilling blocks. Leases. Royalties. Ranches in fee.
H. F. Anthony, Pecos, Tex.

WRITE for my state of Texas oil map free. Oil leases exclusively. Reference, Mercantile Agencies.

C. W. WEBSTER
W. T. Waggoner Bldg.
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CUBA—Producers, investigate our oil resources! Present production sells to local refinery at $5 per barrel. Offer large drilling block with structure and seeps. Adjoins production. Promotion propositions not wanted. R. G. Lane, P. O. Box 1066, Havana, Cuba.

CLASSIFIED advertisements in this section do pay well in money and in extended business relations. This has been proven by the continual advertising that we receive from the men in the oil industry, everywhere.

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P. O. Box 234, Bradford, Pa.

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C. W. REYNOLDS Realty Co., Stratford, Tex., has several attractive leases for sale. Also some fine land in Sherman County, Texas.

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Underwriter Brainard Ranch oil and gas leases, 25,000 acres in Hutchinson County. Hutchinson County is the major producing area. New 5-year leases from 20 acres to 160 acres. Bought right, can sell at reasonable price per acre. Write for map and prices. I have handled, as underwriter, over 60,000 acres in the field on which over 80 wells are now drilling or producing. Ed R. Mayer, Amarillo Hotel Bldg., P. O. Box 1186, Amarillo, Tex.

ARKANSAS and Mississippi leases and royalties near drilling wells. Any size tracts. Get my prices. Maps free. Drilling blocks handled. W. A. Feild, 905 W. 13th St., Little Rock, Ark.

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LOVING COUNTY TEXAS. Will sell lease and fee or lease only on all or part hundred and sixty acres close to flowing oil well. Write Geo. Young, Suite 515, Hartford, Bldg., Chicago, Ill.

FOR SALE—Leases and production in Warren, Allen and Barren Counties. Have leases in Barren County joining producing leases and some within half-mile to 1 mile of production. W. P. Harley, Bowling Green, Ky.

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FOR SALE or lease, NW ¼ of Section 10, Township 9n, Range 79w, Jackson County, Colorado. Clear title and United States patent. 1½ miles west of the Continental Oil Co. well.

H. S. EVERTS, Owner
731 W. Broadway, San Diego, Calif.

FOR SALE—Oil leases in Cimarron, Texas. Beaver and Woods counties. Orbee Lease Co., 1114 Colcord, Bldg., Oklahoma City, Okla.

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Southeastern New Mexico and west Texas counties — Lea, Eddy, Chaves, Gaines, Andrews, Winkler, Loving, Ward, Culberson and Pecos Counties, oil and gas leases, royalties and drilling blocks. We buy and sell. F. S. Blackmar, P. O. Box 541, Roswell, N. Mex.

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Texas acreage in large or small blocks close to activity of major companies. These tracts, located on Marathon Fold are bargains, bought right and will be sold right. State your wants and secure protection while possible. Address—Owner, S. H. Jaques, 29 Janet Road, Wollaston, Massachusetts.

A PRODUCER of Pa. and Ky. oil (can give good references) desires to sell ½ working interest in 1 to 12 tests located near production or on good structure. Cost of tests at less than ½ of $2,000. Will only answer parties with good references. Ernest Porter, East Brady, Pa., or Monticello, Ky.

FOR SALE—Oil & gas lease or drilling contract on 450 acres in Sec. 1, T. 3N, R. 5W, in Grady County, Okla. Make me an offer. J. Mazur, 1831 Evergreen Ave., Chicago, Ill.

I OWN 80 acres in fee near Benton, Butler County, Kansas. Will lease. One mile North from production. Address John S. McKibbin, 3613 Cleveland Ave., Kansas City, Mo.

LEASES, drilling blocks, royalties, West Texas for sale. Green & Hines, Box 1303, Abilene, Tex.

FOR SEMINOLE and Pottawatomie County leases & royalties, write or wire Brown Brothers and Company, Seminole, Oklahoma, and Shawnee, Oklahoma.

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Acreage for sale, close to producers and drilling wells. Best play in Kentucky.

G. Taylor Yewell, Owensboro, Ky.

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CHARTERS — Deleware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

DELAWARE incorporators. Charters fees small, forms. Charles G. Guyer, 901 Orange St., Wilmington, Del.

ADDRESSES WANTED

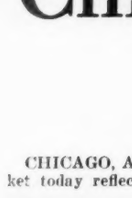
WANTED—The address of Harry Rhodabarger. Address Box 1122, Henryetta, Okla.

Chicago Market Supplied for Present

Jobbers Also Influenced by Rumors of Another Crude Cut. Price Situation Very Unsettled

By J. B. Waldo

CHICAGO, Apr. 4.—The gasoline market today reflected to a considerable extent the active buying recently as there was little new business and attempts to get business were not profitable, many jobbers, when phoned, stating they were supplied for the present. The repeated rumors of a crude decline also induced hesitation among buyers as did the reports of continued bad road conditions in the country districts. The fact that the season is a month earlier than common is not considered, so impatient are the sellers for business right now.



The bulk of the quotations were on the basis of 6½ cents for U. S. Motor gasoline with occasional prices to good buyers at a less figure and some of the more optimistic refiners holding for a quarter to a half cent more. The gasoline price situation is still very unsettled, one factor being sales to marketers at 6¼ cents and even less over April. These usually like to start the month with some shipping orders and will stretch a price to get the business started. The higher gravities continued easy in tone and light in demand.

Kerosene Fair

Although several refiners stated that their kerosene business was good the demand generally seemed to be but fair and the price of 4¾ cents did not always secure the order although this product is expected to show a good business later. Several districts continue to report that the roads were never worse at this time of the year but the dealers anticipate a large demand for gasoline and kerosene as soon as the roads are favorable to the movement of trucks and autos.

Fuel oil still is very quiet, buyers reducing their orders to the least possible quantities and holding for lower prices. Some refiners are holding for a 5-cent advance above last week's quotations on heavy oils but other sellers are offering the heavy grades at $1.05 admitting that their efforts to sell are producing very poor results. Gas oil continues to weaken with the usual result of a falling market, that is a holding off on the part of buyers.

Managers of large distributing organizations report that their gallonage for March was substantially ahead of last year owing to the better weather which permitted the active use of the autos in the cities where the bulk of the gain was made and in their judgment this increase will extend to the entire territory as soon as the roads improve in the country.

Buying Steady, Not Active

The active buying movement which was noted on last Monday and which had been felt in the market for a few preceding days did not last. There was steady buying all the week but not in large amounts. The bulk of the large sales went to one seller who apparently wanted a certain volume of immediate and nearby business and having secured that put the price back where it was before the additional orders were so desirable. There have been several of these "breaks" for business and the question is, have they all got enough orders booked to make all refiners refrain from dumping, until the increasing demand from distributors will absorb the regular runs. According to all reports, there is still an excess of production above deliveries and those who have not bought but intend to buy are waiting for some refiner to seek relief in the shape of a few large orders. Many of these large orders placed from 10 days to a week or so ago consisted of a certain quantity for immediate delivery usually priced at 5¾ to 5⅞ cents and a larger amount over 60 days at 6 cents for the most part. There are some marketers who have bought for April delivery at 6 cents and others at 6¼ cents and should the demand fail to show the desired increase, these marketers, some of them small concerns, may start a selling movement on their account that will hold the market at around 6½ cents.

400 Endpoint Gasoline

More and more of the refiners with distribution are coming to the idea of a higher grade at no advance in price. The Texas Company started it with its 60-62 400 endpoint at the regular station price. Others followed suit in the plan to say nothing of the many who put out a super gasoline at an increased price. Now the Roxana Petroleum Corp. has begun the distribution of a 60-62 400 endpoint "extra dry" gasoline as its regular motor fuel displacing the 58-60 437 endpoint but at the regular price of the former grade. The Johnson Oil & Refining Co. recently made the same move with its "improved" gasoline. There are some good oil men who believe that this grade will finally be generally adopted although the Standard and Sinclair companies have as yet made no move to change their standard grade but distribute the higher quality at an added cost to the motorist.

The demand last week after the first day or two was generally light, but one reason for this was that the end of the month was so near at hand. There is in all lines a slowing up of buying towards the close of the month. Those refiners who had not participated to a good extent in the selling of the previous period were anxious for business and towards the close of last week there was less of firmness both here and judging by offers received at the refining centers. There is a good deal of competition developing between the refiners of the central states and those located west of the Mississippi or rather the Missouri River. The output of most of the central state plants has been added to and new plants built all of which are trying for a share of the business so that Group 3 refiners who want to sell gasoline to eastern buyers have found stiff competition and have had to make low prices. Ohio is a very glaring instance but the effect is felt throughout the territory and will be felt until the output of these centrally located plants is absorbed by an enlarged home demand. The price situation for last week showed very little change as a whole with a wide range of quotations for the U. S. Motor grade ranging from 6¼ to 7 cents. Early last week the bulk of the new business in the spot market was done at 6¾ cents but as soon as the demand dropped off and larger volumes of gasoline were offered at 6½ cents which was almost the exclusive price for the sales made late in the week except to such customers of refineries as take the price of their contracts which are determined week by week and usually follow the market by several days and will be a little higher than the market when the drift is downward and below it when the price is moving upwards. The demand for the higher gravities was slack and the tendency easier with 7 cents representing the average of 60-62 400 endpoint and 7½ cents that of 64-66 375 endpoint. At least one large refining organization was quoting 6½ cents for U. S. Motor gasoline right through the week but meeting the competition of other responsible refiners.

Kerosene Situation

Several refiners last week stated that their kerosene business was good but in each case they were selling to other refiners to a considerable extent and actual shipments to dealers' stations were in line with the report of other sellers that there was no particular activity to the movement. Supplies were fairly plentiful and the demand fair. If there is to be any active demand this spring it will come later in this month when farming conditions are more favorable to active work in the fields. Right now there are very considerable areas where the fields can be worked by teams that would not hold a tractor. We may have the same rush late in the season that we had last year for tractor fuel but supplies are more ample, as compared with the probable demand.

Distillate Active

Distillates are very quiet. Stocks here are large and any needed cars can be had from local dealers at low prices. One refiner has been trying to close out a small quantity of a special furnace oil of higher grade than a regular 38-40 distillate at 4 cents with little success. The price during the season was 5½ cents. A good 38-40 straw distillate can be bought at 3½ cents and a 36-38 dark oil at 3¼ cents. These are not refiner's quotations but resale prices for odd cars which make up the present business.

Painters' Naphtha

Naphthas such as are largely used by the paint and varnish trade were reduced last week in tank car lots only no change being made in the tank wagon prices here. The new scale is Oleum spirits, tank car, 12½ cents; tank wagon, 18 cents; V. M. & P. naphtha and cleaners' naphtha, 14½ and 20 cents; Stanisol, tank wagon deliveries only, 21 cents. The tank car prices are f. o. b. Whiting and the tank wagon prices are in the Chicago delivery district.

Gas oil weakened steadily during the week and at the close was being offered by several refiners at 2⅞ cents, Group 3 basis, by both the Oklahoma and north Texas refiners. This quotation is for the U. G. I. specification but the premium for the light straw gas oil is very small. Were a refiner asked for a price on a shipment of several cars of light straw, zero oil a higher quotation would probably be made but mixed shipments are being made at the 3-cent price.

One prominent marketer of gas and fuel oil asked for reports from refiners of their stocks and states that they have only a fair quantity of fuel oils, some of them show very little, but that they all have large supplies of gas oil most of which has been accumulated for cracking but which is not wanted at present for that purpose. The consumers of gas oil are continuing their tactics of buying just as little as they possibly can and keep a small stock. Many are drawing against their stocks and are not in the market right now. At best the outlook is not considered as favorable for any better demand for some time and prices are expected to go a little lower, how much, no one is prepared to state. One nearby gas company recently gave an order for gas oil at 3¼ cents and the buyers incidentally stated that they had that morning received the last of 10 cars bought at 4¼ cents.

Fuel Oil Slow

Fuel oil is moving slowly although an occasional order for a quantity is received. This is usually from a large concern and an analysis of the order shows that it is a comparatively small quantity for that concern to buy. The prices being quoted to even small users are low. One user that might buy seven or eight cars a month was quoted $1.05 for immediate and $1 over April. Several refiners are offering their fuel oil to consumers at $1.05 for grades ranging from a 14-16 to 18-22 oil. There is little or no demand for the gravities higher than a 22-26 oil and more and more users have adapted their plants to the use of the heavy fuel oils. There is another side to the use of the heavy oils and that is that some of the large consumers have recently shifted their account from one refiner to other sources of supply, complaining that the oil was so full of sediment or residuals of some sort as to make them a great deal of trouble in using it. One of the large steel companies has complained that the oil supplied to it was so full of what the buyer terms "flake carbon," that it completely stopped the lines and gave them so much trouble that they have bought elsewhere. The oil is 14-16 gravity cracked oil. They believe that the crude had been stripped by the cracking process of so much of its lighter fractions that what was left to be sold as fuel oil contained several times as much of the heavy impurities as the same grade of fuel oil should carry judging by comparison with the fuel oil formerly received. Some of the buyers are now buying on a viscosity test only, but they are overdoing it. One of the large users stipulates among other specifications that the viscosity should be 200 at 100 degrees.

Several of the purchasing agents have recently said that they had made a mistake in buying some of the recent offerings of heavy fuel oil simply because it was cheap in price and that a better grade of oil would have been less expensive in the long run but they want the better grade at a low price. Smackover fuel oil is also lower although it holds better than refinery oil. The supply is limited and there are many who have found it a profitable oil to use but the suggestion is made that there is less of it being cracked and that there may be still less used for cracking stock in which case the supply available for fuel oil would be larger. One refiner stated that he was running South El Dorado crude and storing Smackover.

No Change in Lubs

There does not seem to be any noticeable change in the lubricating oil situation here. There is a very fair demand for motor oils and greases and a steady movement of industrial lubs and specialties. There is little question that the persistent efforts of the large concerns in the business to educate the public to the use of better lubricating oils and particularly some particular brand is successful but at the same time there is a demand for good motor oils that do not bear a trade mark very largely because the dealers and garage owners find that they can make a larger profit even while giving their customers an equally high grade oil.

Tank Wagon Steady

There has been no change in the tank wagon schedule in the Standard of Indiana territory and none seems to be anticipated. Another crude cut might make a change necessary but the opinion is that having held the price to this date it will be held through the early part of the season at least. The larger companies all report a good gallonage as compared with last March, which was not a very good month.

COMPETITION IN EASTERN MARKET RESULTS IN SOME LOWER PRICES

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Apr. 4.—Competitive conditions in the Atlantic Seaboard tank-wagon markets developed a little more severely during the past week, as prices were slashed in some sections 2 or 3 cents a gallon. In Rochester, the tank wagon price of gasoline was cut from 20 to 17 cents by the leading marketers, with some cases of lower prices being quoted by some independent units. In New York City one chain of service stations is selling gasoline at 17 cents retail, this representing a comparatively small gallonage, yet indicating a generally unhealthy trend at the present moment.

In the kerosene market, some low quotations have been noted in scattered sections. In Baltimore, for instance, the tank wagon market is quoted at 10 cents by leading factors.

Due to Competition

The action of the leading marketers in cutting their tank wagon prices in some sections below the general level of prices is explained not so much by fundamental conditions in the oil industry as by efforts to meet competition offered by some companies. It is important to know the source of the gasoline and kerosene offered by the concerns selling at such low levels, but this is often difficult to trace. There is some Mid-Continent gasoline and kerosene coming into the eastern markets, but according to one large eastern factor, this competition is being overestimated. Price cutting at seaboard points, on the other hand, is attributed mainly to imported material, and some factors claim it is much inferior to the domestic gasoline and kerosene being marketed.

The extension of service station facilities by some of the large refiners on the Atlantic Coast indicates a possible strengthening of basic conditions here, both as regards gasoline and kerosene.

U. S. Motor gasoline at Bayonne is now being quoted at 10 cents a gallon, the lowest level yet reached. Reports continue to come in of sales made below the average level, one at 9¼ cents a gallon representing the lowest which rumor has yet fixed. Of course it is always possible, or even probable, that some factor will be willing to "dump" a small quantity of material below the market, but it cannot be said that much gasoline is moving at below 10 cents, f. o. b. tank car, Bayonne.

Kerosene Unchanged

The kerosene tank wagon market, generally, has at least stopped declining, and it is hoped that no lower price levels will be reached. In as much as there appears to be a better domestic and export demand. Of course there still is weakness at some points, as noted above, but this is largely local.

Although water white kerosene is available at eastern refineries at as low as 7½ cents a gallon in tank car lots, there are indications that business is improving in the tendency in some instances to ask 7¾ cents for a single car.

Furnace oil is firm at 11½ cents a gallon in lots of 400 gallons or more. This price has held since May of last year. Demand is increasing steadily. The Standard Oil Co. of New York is instituting an aggressive selling campaign in connection with the Arrow Home Oil Burner, with what is said to be a considerable success.

Gas Oil

Gas oil is firm at 6 cents a gallon for 28 plus at Bayonne. It is said to be in good demand at this level.

Despite reports of the restriction of "cracking" operations, refiners do not seem anxious to sell gas oil and fuel oil. It is reported curtailment of "cracking" is not as extensive as originally reported.

Diesel oil is slightly lower at $2.40 a barrel at New York, but demand is holding up well.

Bunker fuel oil is firm at $1.75 a berrel. Local suppliers are understood to be sold out so far as current supplies are concerned, and higher bids may be asked on new business. Imports of heavy crude and fuel oil from Mexico have dropped off considerably.

Lubricating Oils

The lubricating oil market is firm, on good motor and industrial demand. There were slight concessions on some export grades, notably bright stock. Light 135 was cut from 45 to 44 cents a gallon (in barrels) and dark 135 was reduced from 43 to 42.

Oil City "E," 600 steam refined, on the other hand, advanced one-half cent a gallon for export to 24½ cents, in drums.

Paraffin Wax

Further weakness in the paraffin wax price structure occurred despite improvement in the export demand. Refined wax of 120-122 a.m.p. is now at a low price of 4¼ cents a pound.

Petrolatums

The market for petrolatums continues comparatively weak. Dark green is now 1¾ cents per pound, in carload lots. The greatest weaknes, however, is evident in the higher grades. Lily white, for instance, is now available for 7 cents a pound, a drop of one-half cent a pound, while snow white can be had for 8⅛ cents. Amber, extra amber and cream are in fair demand with quotations unchanged.

Export Market

The New York oil export market continues in a lethargic condition, although a very heavy movement from the Gulf Coast is reported. This situation is due probably to relatively lower prices quoted at the Gulf at present.

Shipments of paraffin wax are holding up well, averaging more than 1,000,000 pounds a week for the last three weeks. This is due to better buying on the part of European consumers.

One feature of the export movement last week was a cargo of over 9,000,000 pounds of petroleum asphalt destined for Havre, France.

A prominent exporter here states that European gasoline consumption is running well ahead of last year, and expects the increase will continue throughout 1927. In England consumption is about 16 per cent over 1926, he states.

Petroleum Exports

The following table shows principal exports of petroleum and petroleum products from New York during the last three weeks (all figures in gallons unless otherwise noted):

	Week Ended— March 30	March 23	March 16
Gasoline:			
Bulk	.....	1,815,744	.....
Cases	105,000	1,199,500	1,411,420
Kerosene:			
Bulk	.....	1,817,088	.....
Cases	221,500	806,980	1,458,920
Lubricating oil:			
Bulk	.....	1,668,366	.....
Bbls.	36,250	346,100	27,100
Cases	183,070	546,260	327,240
Lubricating grease:			
Bbls. (Lbs.)	256,500	.....	631,350
Paraffin wax:			
Bags (Lbs.)	917,840	1,512,940	829,400
Petroleum asphalt:			
Bulk	.....	866,208	.....
Bbls. (Lbs.)	9,020,250	.....	.....

The foregoing figures include shipments of 500 bbls., 1,000 cases, or more.

Tanker Charter Market

The oil tanker market is fairly active. Rates are slipping somewhat as new vessels are being launched from the ways in this country and abroad.

The Vacuum Oil Co. recently completed two new vessels, the "Pulpit Point" and "Plume," built for it at Glasgow, Scotland. Order has been given for construction of a new vessel in the same yards.

New tanker charter fixtures include the following:

Phoenix, 3,511 tons net, for one year, Gulf to north of Hatteras, crude oil, 35 cents a barrel.

Tanker Stelvio (Ital.), 8,500 tons, clean, prompt loading, Black Sea to Baltic, 40s.

Tanker Bianca (Ital.), 5,500 tons, part cargo, April loading, Gulf to United Kingdom-Continent, 55s.

Tanker Southern Isles (Br.), 3,500 tons net, crude or gas oil, July loading, north of Hatteras to United Kingdom-Continent, 37s 6d. or Gulf at 42.6d. (This rate represents lowest on movement).

Oil Receipts Lower

Receipts of crude and refined oil at Atlantic Ports for the week ended March 30 are estimated at 3,428,000 bbls., a daily average of 489,000 bbls. a day, as compared with 4,031,000 bbls., or 576,000 bbls. daily, the week ended March 23.

The feature of the movement was continued heavy imports from South America. These averaged 92,000 bbls. daily. Imports from Mexico were only 39,000 bbls. a day.

Petroleum Recipts

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports for the last three weeks; also monthly record for the last 12 months (figures in barrels):

	Mar.30	Mar.23	Mar.16
Gulf Coast	287,000	378,000	363,000
Pacific Coast	71,000	124,000	78,000
Mexico	36,000	6,000	67,000
South America	92,000	68,000	63,000
Total	489,000	576,000	571,000

Daily Average by Months

	Gulf	Pacific	Mex.	S.A.	Total
1927:					
Feb.	379,000	89,000	40,000	48,000	556,000
Jan.	362,000	73,000	49,000	61,000	545,000
1926:					
Dec.	363,000	57,000	40,000	61,000	530,000
Nov.	335,000	62,000	56,000	40,000	493,000
Oct.	270,000	71,000	61,000	43,000	445,000
Sept.	299,000	98,000	63,000	58,000	518,000
Aug.	320,000	61,000	71,000	56,000	498,000
July	360,000	66,000	115,000	36,000	577,000
June	396,000	104,000	117,000	18,000	635,000
May	318,000	66,000	114,000	25,000	523,000
Apr.	326,000	92,000	126,000	20,000	564,000
Mar.	317,000	97,000	152,000	26,000	592,000

The foregoing figures are based on the carrying capacity of incoming oil-laden tankers.

SOUTHWEST TEXAS FIELDS

(Continued from Page 146)

east of No. 9, is erecting derrick. Houston Gulf Gas Co.'s No. 3 Holmes Heard, is at 2,100 feet and ready to test; No. 3 Fox in Lot 4 Block 5, Town tracts, is drilling at 1,800 feet; No. 2 Moody, Town tracts No. 2, located 450 feet to south line and 750 feet to west line, has been completed making 31,000,000 feet of gas; No. 3 Moody, Refugio tracts, is drilling. William F. Morgan's No. 1 Rose Rogers, Powers Survey, fork of Midio and Blanco creeks, at 1,880 feet has been completed making 30,000,000 and extends the field three-quarters of a mile. Location has been made for No. 2 Rose Rogers by William F. Morgan northeast of the No. 1, and casing has been set in No. 1 Lambert.

KANSAS FIELDS

(Continued from Page 51)

No. 1 Freilinger, SE cor. NE NE, Section 36-31-3. The Texas Company made location for No. 1 Hettle, SW cor. NE SE, Section 21-31-4. Twin State Oil Co. made location for No. 3 Goodrich, NE cor. SW SE, Section 21-31-4. Imo Oil Co. staked location for No. 1 Graham, SW cor. NE, Section 10-32-4. J. A. Hull Co. made location for No. 10 Ditmer, NW cor. NE SW, Section 24-32-4.

Trees Oil Co.'s No. 1 Dickson, SW cor. NE, Section 30-30-4, is producing 75 bbls. from sand 2,865-74 feet. Twin State Oil Co.'s No. 2 Ross, NW cor. SE SE, Section 21-31-4, was shot with 5 quarts in sand 2,360-2,401 feet and made 117 bbls. T. B. Slick's No. 2 Dibbons, NE cor. SW NE, Section 22-32-4, was shot with 30 quarts in sand 2,885-2,367 feet and completed for 75 bbls. Barnsdall Oil Co.'s No. 1 Thurlow, NW cor. SW, Section 8-33-3, was completed for 230 bbls. in sand 3,152-3,500 feet. Pyle and others' No. 1 Pudden, C SE NE, Section 16-35-4, was shut in for 5,000,000 feet of gas from sand 1,750-56 feet.

Elk County

Union Gas Corp.'s No. 1 Webb "B," NW cor. NE, Section 23-31-10, an old well, was deepened to 1,660 feet and plugged back to 1,244-46 feet and completed for 500,000 feet of gas.

Greenwood County

Simmons & Rhodes' No. 1 Wengler, NE cor. SW, Section 12-23-12, an old well being deepened is underreaming at 1,875 feet. Leeward Petroleum Co. has a rig on the ground for No. 3 Hill, SW cor. SE NE, Section 27-24-9. Empire Gas & Fuel Co. made location for No. 5 Robertson, NE cor. SE SE, Section 18-24-11.

Empire Gas & Fuel Co.'s No. 1 Pixlee, NE cor. NW SE, Section 7-22-10, was shot with 100 quarts in sand 2,403-35 feet and made a 20-bbl. well. Theta Oil Co.'s No. 18 Browning, NE cor. SE NW, Section 17-22-10, had sand 2,318-48 feet and plugged back to 2,343 feet and was shot with 120 quarts and made 125 bbls. York State Oil Co.'s No. 1 Malorie "D," SE cor. SW, Section 29-22-11, was shot with 80 quarts in sand 1,964-97 feet and produced 29 bbls. Bement Oil Co. & Amerada Petroleum Corp.'s No. 1 Swanson, NE cor. SE, Section 9-22-12, was completed for 20 bbls. after a shot of 40 quarts in sand 1,808-22 feet. The Texas Company's No. 4 Swanson, SW cor. SE NE, Section 9-22-12, is making 15 bbls. after a shot of 60 quarts in sand 1,797-1,804 feet. Phillips Petroleum Co.'s No. 1 Ward, NW cor. SW, Section 26-23-8, has been abandoned at 2,518 feet. Elmwood & Parker's No. 1 Hall, SE cor. NW, Section 12-23-10, is a dry hole at 2,250 feet. Henderson & Holdren's No. 1 Gaffney, SE cor. SW NE, Section 7-24-11, was given a shot of 60 quarts and made 10 bbls. from sand 1,867-86 feet. Troxell, Brookover and others' location for No. 1 Kester, NW cor. NE NE, Section 33-24-12, has been abandoned. McCullough and others' No. 1 Bayes, SE cor., Section 5-24-13 is dry and abandoned at 1,725½ feet. Roth & Faurot's No. 11 Birkett, NE cor. SW, Section 12-25-8, has been abandoned at 2,320 feet. Fisher, Lauck and others abandoned the locsation for No. 1 Roby, NW cor. SW NW, Section 18-25-10. Reed and others' location for No. 1 Long, SW cor NW, Section 17-25-13, has been abandoned.

Lyon County

Transcontinental Oil Co.'s No. 12 Atyeo, NW cor. SW SW, Section 30-21-10, made 40 bbls. after a shot of 80 quarts in sand 2,199-2,213 feet.

Marion County

Frank and others have the rig on the ground for No. 1 Reed, NW cor., Section 17-19-4. No. 1 Houser, NE cor., Section 33-17-4, is dry and abandoned in the Siliceous lime at 2,680 feet.

Russell County

H. F. Wilcox Oil & Gas Co.'s No. 1 Ginther, NE cor., Section 19-12-15, is making 60 bbls. from sand 2,993-3,021 feet. Midwest Refining Co.'s No. 31 Mermis, SW cor. NE, Section 5-14-15, is a 200-bbl well in sand 3,030-62 feet.

Sumner County

Vickers & Johnson's No. 2 Shore, SE cor. NW SE, Section 24-31-2 in the Churchill Pool, was completed for 500 bbls. after a shot of 18 quarts in the Churchill pay 1,870-1,937 feet. Roxana Petroleum Corp.'s No. 2 Shore, NE cor. SW SE, Section 24-31-2 had the pay 1,858-1,927 feet and after a shot of 10 quarts it made 500 bbls. No. 3 Shore, NW cor. NE SE SE, Section 24-31-2, was shot with 40 quarts in sand 1,864-1,938 feet and made 350 bbls. No. 4 Churchill, CEL E half SE SW, Section 25-31-4, found the sand 1,836-1,903 feet and after a shot of 60 quarts it made 500 bbls. No. 4 Van Sickle, CWL NE NW SE, Section 25-31-2, was shot with 80 quarts in sand 1,839-99 feet and made 800 bbls. Marland Oil Co.'s No. 1 Hull, NE cor., Section 11-35-1, is dry and abandoned at 3,835 feet.

NIOBRARA COUNTY LEASE

WASHINGTON, D. C., Apr. 2.—An oil and gas lease has been entered into by the Department of the Interior with the Lusk Royalty Co. and others for 1,000 acres of land in Niobrara County, Wyoming. The royalty rate was from 12½ to 25 per cent. It is said that 25,000,000 feet of gas per day was discovered on the land in 1919 at a depth of 3,388 feet.

Factors in Gasoline Plant Operation

Many Economies Possible Through Careful Construction and Maintenance in Natural Gasoline Manufacture. Personnel Important

By L. O. Smith*
Superintendent, Tidal-Western Refining Co., Burkburnett, Tex.

The satisfactory and economical operation of a plant is so dependent upon the construction that a word or two on that subject, as an introduction, should not be out of line. Some of the large companies maintain construction organizations which are usually under the engineering department, and whose job it is to complete the work within the engineer's estimate. These estimates are sometimes made without the operator's consideration, and plants are sometimes built in the same manner, usually by engineering companies who have no future contact with the operation of the plant, and some of them never had much previous operating contact. Plants built under these conditions sometimes carry operating difficulties that are hard to overcome.

One of the things that has a direct bearing on operation, and that should be considered from an operator's viewpoint, is the location of the plant site. This should be selected with a view to accessibility, drainage, sanitary living conditions, etc., but of course, oil fields are not located with these things in view, consequently plants cannot be built in ideal locations, but the above things should be considered when possible.

As actual construction begins with foundations, the first thing to consider should be the proper foundation for the machinery. Loose foundations, or foundations of concrete that were not properly made, are sure to develop a serious operating problem.

The selection of machinery should be made with the advice of practical operating men. Engine and compressors are standardized now so that this selection is not difficult, unless you are inclined to experiment. The selection of auxiliary equipment, such as pumps, air jammers, electric generators, and auxiliary engines, is very important from an operator's view, and can cause more operating difficulty than the larger equipment. Circulating pumps, both for water and oil, in the case of absorption plants, should be large enough to more than handle the work necessary, and should be so manifolded that any pump may be used for any purpose. Standby, or extra, pumps are very necessary. The circulating system is the life of the plant and good equipment should be placed in it. A good windjammer, or air pump, should be installed. In plants not located near a supply of current, it is good operating precaution to install two electric generators, one large enough to carry full load and a smaller one to generate light from a small gas engine in case of line shaft, or auxiliary engine trouble, as working in the dark is dangerous. Lights are needed most in time of trouble. By all means install a line shaft of sufficient size, and with proper bearings and clutches. More operating difficulty has developed over line shafting than any other one thing.

Shafting Troubles

Shafting placed on the building trusses usually gives trouble by getting out of alignment, especially if long drives are used. Shafting set on concrete pillars, or in a concrete trench in the floor, is usually more satisfactory. As clutches are also a source of much operating grief, they should be carefully selected and of proper size. The outside grip clutches, both V groove and flat, are easily adjusted and are accessible when replacements of blocks or parts are necessary. A clutch should be placed on the main auxiliary drive in all plants, so that the throwing of belts on fast-moving pulleys will be unnecessary. The selection of auxiliary engines depends on the horsepower required, and should be of sufficient size to develop surplus power. The auxiliary equipment being the heart of the plant provision should be made for at least two drives.

A very essential part of the auxiliary equipment is an engine small enough to be started by hand, and so installed that it will operate a windjammer and small electric generator in emergencies. All auxiliary belt drives should be so arranged that excessive strain will not be required to drive the equipment. A tight belt is a sure source of operating difficulty, as well as expense. Tight belts are not necessary where installation is planned with sufficient slope to the drive belts. Line shafting in a trench below the floor level makes it possible to arrange belting almost horizontal, as well as having other advantages, such as accessibility and holding alignment.

Field lines are a source of much operating difficulty if not properly laid. Usually this is a matter that is settled on the draughtman's board, and the nearest distance between two points is the only thing considered. Field lines should have careful planning by a practical operator; drips located according to his judgment, stream and road crossings avoided as far as is possible. Operating difficulties are avoided to considerable extent if lines are properly drained, properly buried and laid with sufficient slack to catch any liquid that field drips fail to catch. A serious operating difficulty arises when liquid reaches the compressors or vacuum pumps, even in small quantities, and serious accidents to men and equipment have occurred on this account.

Use of Master Meters

Plants should be equipped with master meters, so located that all gas entering plant be measured by one or two meters. Charts from these should be computed daily and the plant recovery calculated to gallons per thousand for the chief's information, as soon as possible. A good many plants are still operating without this information daily. Another valuable bit of information for the plant chief is the figures giving volume of gas received from each lease as soon as this is available, so that a decrease in gas may be noted and a check made to determine the cause. In fields where vacuum is maintained, this information is very necessary as an increase in volume may indicate air in the line, and all plant operators know the trouble that air may cause. The usual procedure on field meter charts is to send them to the main office where calculations are made. In case the office notes a variation in volume they usually write advising and asking the reason. By that time the matter is so old that no information is available. Orifice meters have almost entirely replaced the proportional meters on new installations, as they are easy to test and repair, and may be used for any size volume with change in plate sizes. Greater accuracy is claimed for the orifice meters.

All plants should be equipped with accurate drawings of field and plant lines, and in cases where plant lines are numerous, as is sometimes the case with absorption plants, the different lines should be drawn in different colors, or on separate plats.

Operating crews for new plants are usually selected from the construction crews. The usual procedure is to transfer a chief engineer from another plant a few weeks before the plant is ready to operate, making him plant superintendent and letting him select the crews. This usually works out, as the men on construction are familiar with the installation of equipment, and if care is used in selecting men very little difficulty is had in teaching them the details of operation.

Operating Crew

As soon as the operating crew is selected they are given instruction as to duties, responsibilities, etc. As soon as possible, organization charts should be mailed showing the working plan of the organization, and to whom each man is responsible. It is also advisable to write out a list of responsibilities and duties of each man, as far as possible to do so, and have the employe add to this from time to time as new duties are assumed, or as employe learns the various duties assigned. As the crews become acquainted with the work and become proficient, a little competition between them serves to keep the spirit up. There are numerous ways in which this may be done. One of the best is to assign each crew a certain portion of the plant and equipment to keep clean and painted for a period of time. This work should be as nearly equal as possible, but the sections assigned each crew may be changed at certain periods so that the work will be equalized in this way. Where possible to have competition between plants some very interesting things may be developed, such as lube oil used per unit, fuel burned per horsepower, etc.

Mechanical upkeep of plants is very essential. If the equipment is allowed to get in rundown condition, operating difficulties pile up so fast that the best crews will get discouraged. The surest way to maintain plant equipment is to give immediate attention to small repairs. If this is done the equipment will never get in bad condition. The chief engineer of the plant may save a lot of money in both time and material by attention to small repairs, or spend a lot of money by his negligence.

Some plants are sufficiently large to justify a repair crew. While this is good in some ways, the operating men are inclined to let all minor repairs go and expect the repair crew to catch them, even though the engineers and oilers have time for minor repairs. Smaller plants have all work done by the operating crews, usually with the assistance of the chief engineer.

Nearly all companies are running on eight-hour shifts, and the crews change shifts at certain periods. It is customary for the crews to arrange for a shift off at each change, this is done by two crews working 12 hours.

First-Aid Instruction

Plant men should be given first-aid instruction, and teams organized where enough men are employed. Special attention should be given to instruction in artificial respiration, stopping the flow of blood and to first aid treatment of burns. Instruction should be given in fire prevention and fire fighting. Fire drills should be a regular part of the operating routine. At each drill instruction would be given in the use of some part of the equipment, and an occasional demonstration with actual fire under conditions similar to what might be expected, is excellent training. An inspection of all guards, gear cover, railings, fire extinguishers and fire fighting equipment should be noted also, and any piece of equipment not in its alloted place should be located and explanation demanded as to why it was not in place. These inspections should be made by someone not directly connected with the operating organization, if possible, otherwise someone at the plant should be charged with this responsibility.

The field men, such as air testers, meter readers, line walkers, drip pumpers, etc., should have special instruction regarding their contact with producers and lease men. There is sometimes a lot of friction due to these men not giving proper thought to complaints or questions from field men. One of the most serious difficulties in some fields is the supply of gasoline available for return to the leases for operating pumping equipment. Or, rather, the lack of supply. A producer is suffering a loss, and in case of a complaint from him to any of the field men, they should see that the matter gets attention, or that it is immediately reported to someone who can give it attention. When leases do not operate the supply of gas from the lease is lessened, and in some cases, cut off entirely, so that both the producer and plant owner is losing money. Co-operation between the field men and lease men is very necessary at all times. It is sometimes necessary to help a producer get return gas at night, and producers should feel that they are to call on someone at any time, day or night, if they have complaint. Producers will not fail to appreciate this kind of co-operation and will return it whenever possible.

One of the things necessary to plant operation is plenty of good water. Water containing lime or magnesium salts is the source of much trouble and expense, as the scale caused by the lime and magnesium salts clogs engine and compressor jackets and water lines. Treating the water with lime and soda ash is effective in cases where there isn't an excess of magnesium, and if properly done, beneficial results may be obtained even though an excess of magnesium is present. Circulating systems should be so arranged that water may be pumped over cylinders, or may flow by gravity in case pumps are down for a short time, as might be the case when a belt breaks, or pump has to be repacked. Good drinking water is also very necessary, and bacteriological analysis should be made in case there is doubt as to the purity of the drinking water. Good employes look after the health of themselves and families, and cannot be expected to stay in unhealthy places.

Repairing Leaks

Leaks of all kinds are expensive around plants, gas and gasoline leaks are especially so. Gas leaks usually occur around valve stems, piston rod packings and through relief valves that have not been properly ground. Gasoline leaks usually occur at the valves on the accumulator tank drains and the oil separator draw off valves. Leaks of this kind are dangerous and expensive. A careful engineer will insist on two valves being placed on drains that are frequently used, and will always make sure that valves are not dripping when he is through using them.

One of the greatest plant operating difficulties is air in the gas, especially where high vacuum is maintained on wells in the field. The gasoline yield is affected to a certain extent as the air per cent increases. However, the effect of a certain per cent of air is not the same on all gases. The richer gases are apparently not affected as much as lean gases. The effect of air on the gasoline recovery is not the only trouble caused by its presence. Usually plants are designed for a certain load and in new installations, there is usually no surplus units, or capacity, and as the air per cent increases the machinery becomes overloaded, and this is no small difficulty with internal combustion engines. An-

*Read before Plant Operators' Meeting, Association of Natural Gasoline Manufacturers, Wichita Falls, Tex., March 25.

other difficulty caused by air in the gas is that machinery is usually set to run with a certain mixture, and this mixture usually being residue from the accumulator tanks, is seriously affected by a sudden increase in percentage of air, such as might be caused by the carelessness of a production employe in turning a well in, or out, of the line. It is not unusual for a plant to have every unit stop on this account. Field meters usually tell on the charts, just what happened, and what time the air was let into the line. If a producer who has an employe whose carelessness causes plant operators an unnecessary amount of trouble had prompt co-operation from the plant operators in the various ways in which it is possible for operators to assist, has such carelessness called to his attention in the proper way, favorable action is usually taken.

Physical Testing

Physical testing to determine gasoline content is one of the points of contention that is never handled to the entire satisfaction of producers. Most producers have been advised that natural gas continually increases in gasoline content, and they expect just this. Very few producers, or lease men, are familiar with the gasoline business, and if they were told that a well might show a gasoline content in the morning that would not check a test made at noon, and that the morning or noon test might not check a test made late in the afternoon, he would probably think that someone was trying to kid him. However, this very condition is possible in fields where wells are pumped during the day time only, and where they head up with oil in the hole at night sufficient to partially shut off the flow of gas from the hole in the early morning before the well starts pumping. The presence of air has a more serious effect on the gasoline recovery from the field test cars than it does upon a well-constructed plant. Producers realize this and the quarterly test serves to keep the air down in the field lines as producers usually insist that wells be in good condition for some time prior to the physical test.

Field test cars should be in the very best mechanical condition at all times. A well-kept test car indicates to the producer that the equipment is in first class condition, and that he might reasonably expect an accurate test. Test car meters should be tested frequently, as an inaccuracy might easily occur after a dozen tests, especially where tests are made under vacuum. It is unnecessary to add that test machines should be entirely free from leaks.

The present-day methods of having gasoline stocks made to rigid specifications is quite an advance over gasoline shipped several years ago, when the only specification was vapor tension. An insulated tank car, covered with frost, due to evaporation of contents while weathering to low enough vapor tension to ship, would probably cause some comment in this day of improved methods of making gasoline to specification. The change has been for the better for all concerned, and the men responsible for loading and shipping do not now have a vision of accidents every time a car is loaded.

The various automatic regulators and controls have done much to assist the operator. So have the charts and records that have been developed. Generally speaking, automatic devices and controls should be limited to as few as possible, rather than going to the extreme and trying to regulate everything automatically. The absorption plant requires quite a lot of automatic regulation, as there are usually several temperatures to control, as well as pressures and liquid levels.

Plant difficulties are usually multiplied in freezing weather, and the preparation for winter is an important part of plant operation. Dead lines, whether gas, air, steam, oil or water, should be eliminated as far as possible, as they have a habit of bursting at a time least expected, and in most inaccessible places. Water lines, valves, and connections should be carefully checked to see that they are protected. A lot of damage is caused each winter on account of bursting pumps. Pumps, not in use, should be disconnected, and have heads loosened so that no liquid can accumulate in the cylinders. In extremely cold weather ice has been known to form on cooling coils in quantities sufficient to break down the coil supports. Cooling towers are subject to the same hazard unless carefully watched and precautions taken.

While operating difficulties are not so great in summer, very few plants have an abundance of water, and the water supply equipment should have careful inspection before the hottest weather arrives, and all available water storage should be filled to the top at all times. Another summer job, while not classed as an operating difficulty is the setting out of trees, shrubs, etc., and the planting of grass and flowers. Men take pride in the appearance of their plant, and pride in plant appearance is far from being an operating difficulty.

Plant Organization

Efficient plant operation depends upon efficient plant organization. Some captain of industry has said that the secret of efficiency depends upon three things; organizing, deputizing, and supervising. Organizing, of course, is selecting the right men for the job. Deputizing is the placing of duties and responsibilities, with the necessary training and instruction. Supervising is principally the checking of results, issuing instructions and planning improvements where possible. The man in charge of the plant should have the results of the day's operation placed before him just as quickly as they are determined. It is not necessary, or advisable, to wait until the complete plant report is made before obtaining this information. Chief engineers and superintendents are chiefly concerned with production of gasoline, so the gasoline produced the previous 24 hours is about the first thing to check. Gas volumes received, lube oil used, and fuel burned are also necessary to give a picture of the day's operation. Men in charge of plants have their own way of checking operation, usually all that is required is pencil notations on a slip of paper, but the earlier in the day the man in charge gets the figures required by him for checking the day's operation, the better the results of the check.

As each plant is a different operating proposition, it is not possible to give a set of hard and fast rules that will cover the entire routine. Chief engineers and plant superintendents usually have enough initiative and intelligence to work out operating problems, and before issuing any set rule regarding operation it is advisable to discuss the matter with the plant chief. There are cases where the operating duties are shifted to fit the organization. This usually occurs where the plant crew is limited in number, and where each man has a variety of work to do. The larger plants are much easier to operate due to the fact that they are newer and better designed, in most cases, and the salary of a plant chief isn't looked at so closely as it is in the case of a plant where the operation is a loss, except in favorable times. The man in charge of a small plant must be a better practical man than the man in charge of the large plant. The small plant chief usually has to do the loading and shipping, keep up the mechanical repairs, attend to all field repairs and tests, as well as do the reports and laboratory work, while the chief of the larger plant may select an organization for these various duties.

OKLAHOMA FIELDS

(Continued from Page 92)

Strother, NW cor. SW NW, Section 2-8-6. Location was made for No. 2 Strother. SW cor. NW NW, Section 2-8-6. Carter Oil Co. made location for No. 1 Cramer, SW cor. SE, Section 34-9-6. Roxana Petroleum Corp.'s No. 1 Harbor, SE cor. SW SE, Section 22-9-6, is drilling deeper at 4,053 feet. Wilcox Oil & Gas Co. is building the rig for No. 6 Cluck, NE cor. NW, Section 4-9-6. Barnsdall Oil Co. is putting up the rig for No. 3 S. Pack, SE cor., Section 10-9-5. The rig is also being built for No. 4 S. Pack, SW cor. SE SE, Section 10-9-5. Carter Oil Co. is building the rig for No. 1 H. Payne, NW cor. SE, Section 12-9-5. Location has been made for No. 2 Payne, SW cor. SE, Section 12-9-5.

Carter Oil Co.'s No. 1 Scott, NW cor., Section 26-10-6, in the Searight Pool, is making an average of 110 bbls. a day from the Misener sand 4,307-20 feet and the Hunton lime 4,320-21 feet. F. J. Searight and others' No. 5 Epperson, NW cor. SW NE, Section 33-10-6, which had the rig on the ground, has been abandoned. No. 8 Epperson, NE cor. SE NE, Section 33-10-6, has also been abandoned after reaching a depth of 106 feet. Barnsdall Oil Co.'s No. 1 Ingram, SE cor. NW, Section 1-9-5, in the Seminole Pool had an initial production of 500 bbls. on the swab, producing from the Earlsboro sand 3,513-28 feet. Magnolia Petroleum Co.'s No. 1 Williams, SE cor. NW, Section 2-9-5, is dry in the Wilcox sand 4,287-4,304 feet. Barnsdall Oil Co.'s No. 1 S. Harjo, SE cor NE SW, Section 10-9-5, is making 195 bbls. from the Earlsboro sand 3,563-84 feet. Magnolia Petroleum Co.'s No. 2 Spark's, SW cor. NW SW, Section 11-9-5, was completed for 552 bbls. in the Earlsboro sand 3,465-92 feet. Mid-Continent Petroleum Corp.'s No. 2 Tayeche, NW cor. SE SW, Section 24-9-6, in the Seminole Pool, topped the Wilcox sand at 4,098 feet and drilled to 4,107 feet where water was encountered and the well plugged back to 4,103 and made 100 bbls. Tidal Oil Co.'s No. 7 Carter, SW cor NW SW, Section 24-9-6, which had the rig and tools on the ground has been abandoned. Carter Oil Co.'s No. 1 W. Cudjo, SE cor. SW, Section 34-9-6, topped the Wilcox sand 4,210 feet and at a total depth of 4,220 feet, swabbed 575 bbls. The well was shot with 20 quarts and made 770 bbls. Empire Gas & Fuel Co.'s No. 2 Wilson, SE cor. NW NE, Section 34-9-6, made 3,400 bbls. the first 24 hours from the Wilcox sand 4,010-40 feet. Carter Oil Co.'s No. 1 S. Harjo, SW cor. NE Section 36-9-6, a location, has been abandoned. Gypsy Oil Co. abandoned the location for No. 1 July, NW cor. NE NW, Section 36-9-6. Carter Oil Co.'s No. 1 Bowlegs, NW cor. SE SW, Section 15-8-6, in the Bowlegs Pool, produced an initial of 5,800 bbls. from the Wilcox sand 4,140-51 feet.

Gypsy Oil Co.'s No. 2 Walker, NE cor. NW NE, Section 15-8-6, cased off 30 bbls. in the Misener sand at 3,880-90 feet, drilled on to the Wilcox sand found from 4,059 feet to 4,110 feet and made 3,365 bbls. the first 24 hours. Indian Territory Illuminating Oil Co.'s No. 2 Livingston, SW cor. SE NW, Section 15-8-6, made 6,063 bbls. from the Wilcox sand 4,108-26 feet. Independent Oil & Gas Co.'s No. 3 Walker, NE cor. SE SE, Section 29-8-8, swabbed 65 bbls. the first 24 hours from the Sykes sand 3,186-3,202 feet. Mid-Continent Petroleum Corp.'s No. 1 Estachusehoke, NW cor., Section 10-7-6, a location, has been abandoned. Hofer Oil Co.'s No. 1 Reed, NW cor NE NW, Section 6-6-8, has been abandoned at 4,023 feet in shale with a hole full of water. Magnolia Petroleum Co.'s No. 1 Holmsley, SW cor. NE SE, Section 11-9-5, in the Earlsboro Pool, topped the Wilcox sand at 4,279 feet, drilled in to 4,280 feet and made 124 bbls. the first 24 hours. The Prairie Oil & Gas Co.'s No. 8 Kinkade, NW cor. SW SE, Section 33-10-6, Searight Pool, was completed for 200 bbls. in the Hunton lime topped at 4,141 feet. Carter Oil Co.'s No. 4 Knapp, NW cor. SW, Section 13-9-6, and made 50 bbls. of oil from the Wilcox sand at 4,286-99 feet, but has been abandoned on account of water trouble. No. 5 G. F. Killing, SW cor. NW SE, Section 14-9-6, is dry at 4,215 feet in the Wilcox sand. Producers & Refiners Corp.'s No. 2 Salinda, SE cor. SW NE, Section 31-8-8, in the Wewoka Pool, made 133 bbls. from the Hunton lime 3,909-4,053 feet. Mid-Continent Petroleum Corp.'s No. 7 Ikentie, SE cor. NW SE, Section 14-9-6, in the Seminole Pool, had an initial production of 50 bbls. on the pump from the Hunton lime 4,030-75 feet. Gypsy Oil Co. and others' No. 1 Johnson, NW cor. SE NE, Section 15-9-6, is dry and abandoned at 4,410 feet. Mid-Kansas Oil Co.'s No. 1 Cully, NE cor. SE NE, Section 3-8-6, Bowlegs Pool, was shot with 10 quarts in the Wilcox sand 4,250-54 feet and swabbed 602 bbls. Mid-Continent Petroleum Corp.'s No. 2 Work, NE cor. NW, Section 24-8-6, a location, has been abandoned. The Prairie Oil & Gas Co. is moving in the rig for No. 1 Yahola, NW cor. W half SW, Section 2-8-6. Barnsdall Oil Co.'s No. 1 S. Pack, NE cor. SE SE, Section 10-9-5, Earlsboro Pool, made 1,064 bbls. the first 24 hours from the Earlsboro sand 3,525-58 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 55)

its trunk line from Rock River to Laramie. This line is 3-inch pipe.

Runs From the Fields

Salt Creek	40,400
Teapot	1,130
Big Muddy	3,130
Grass Creek	2,790
Elk Basin	890
Greybull	25
Rock River	2,990
Rex Lake	150
Lance Creek	720
LaBarge	240
Poison Spider	170
Osage	360
Hamilton Dome	1,400
Lander	150
Byron	60
Lost Soldier	3,790
Ferris	80
Simpson Ridge	30
Cat Creek	2,400
Lake Basin	190
Sunburst	12,000
Florence	700
Moffat	2,405
Tow Creek	680
Fort Collins	3,840
Boulder	25
Rangeley	100
Walden	100
Hogback	790
Rattlesnake	1,925
Table Mesa	225
Artesia	2,000
Total	85,885

PENNSYLVANIA PENALTY ON FALSE CONTAINERS

HARRISBURG, Pa., Apr. 2.—Governor Fisher signed the Sterling bill, which prohibits the sale of gasoline and other liquid fuels, oils and similar products under false or fictitious names.

The bill also prohibits the use of containers, tanks or distributing equipment for the use of any product other than that indicated on the equipment; prohibits the disguising of equipment by imitating the design, symbol or trade mark under which recognized brands of liquid fuels and oils are sold and prohibits any adulteration of these products.

Penalties for violations of the act range from a fine of $200 to $500 for the first offense and from $500 to $2,000 for each subsequent offense.

FUEL "DOPE" TESTS ESTABLISH NO MERIT

By Charles E. Kern

Washington Bureau. The Oil and Gas Journal

WASHINGTON, D. C., Apr. 2.—Out of 100 or more tests which the Bureau of Standards has made of so-called "fuel dope" on the market for mixture with gasoline to increase speed of automobiles, none has developed any particular benefits in that direction, Dr. H. C. Dickinson, chief of the Division of Heat and Power Bureau of Standards stated today.

"We make these tests," Doctor Dickinson explained, "for the manufacturers on fees paid to the bureau to cover the expenses involved. None of the so-called fuel dopes that are on the market for the user to mix in small quantities of gas have any appreciable merit."

It should be distinctly understood that Doctor Dickinson in referring to "dope" did not have reference to fuels sold on the market by companies that put out high test gasoline taking many trade names. His reference was solely to "dope" sold to consumers of gasoline and intended to be mixed with the motor fuel they purchase.

REFINING AND MARKETING

CRACKING SUIT BRIEF FILED BY THE DEPARTMENT OF JUSTICE

WASHINGTON, D. C., Apr. 4.—Following the completion of the taking of testimony in the Government's suit, under the Sherman antitrust act, against 46 oil refining companies, including the Standard Oil Co. of Indiana, Standard Oil Co. of New Jersey, The Texas Company, Gasoline Products Co., (a licensing corporation) designated "primary defendants," and a large number of so-called independent refining companies, designated "secondary defendants," the department of justice today filed a brief of nearly six hundred pages at Indianapolis, Ind., where the suit is pending.

The taking of testimony in the suit commenced in April, 1925, in Chicago. In its petition the Government prays for a decree of the court adjudging that the system of Cross licenses among more than 50 defendants is an unlawful monopoly and an attempt to monopolize interstate and foreign trade and commerce in gasoline and hydrocarbon products.

The system of license agreements attacked by the Government includes some 200 alleged patents, owned by the large refining companies and gasoline products company. The Government also contends that the license agreements restrict the territory in which gasoline may be manufactured and sold and limit the quantity of gasoline that may be produced by licensed refiners.

The oil companies position is that the combination is justified under the patents issued to them by the patent office, and that the Cross licensing system was necessary to avoid possible infringement litigation.

To meet this defense the Government introduced witnesses to testify that the so called "Adams Patents", owned by The Texas Company, were obtained by fraudulent statements and affidavits.

Charles Martindale of Indianapolis, is master in chancery in the trial of the suit. Martindale was appointed special master in chancery April 1, 1925, and has since been hearing testimony.

The case will be argued in Federal Court at Indianapolis, May 16. The Government has designated April 24, as the date on which the defendants' brief must be filed.

The suit, originally filed in the northern district of Illinois, was expedited, under provisions in the Sherman antitrust law, which it is alleged, have been violated. A certificate of expedition provided that three judges be designated to sit in the case. Judges designated were Evan A. Evans, George T. Page and Albert B. Anderson judges of the Circuit Court of Appeals at Chicago.

Several nationally prominent attorneys are representing the oil companies. John W. Davis, democratic candidate for president in 1924, is representing the New Jersey Standard Oil Co., and C. B. Ames, solicitor-general under the Wilson administration is representing The Texas Company.

ROXANA ANNOUNCES SPECIAL GASOLINE

The Roxana Petroleum Corp. effective April 1 joined the growing list of companies with marketing organizations which are distributing more volatile gasolines. The corporation on that date began the distribution of a 60-62 400 endpoint gasoline at its stations, the product replacing a gasoline meeting 58-60 U. S. Motor specifications.

The sale of the product was accompanied with newspaper advertising announcing the specifications of the product. The corporation is one of the major distributors of gasoline, having a large number of bulk and service stations located principally in the middle western states. The corporation also has a large tank car jobber trade.

The action of the Roxana corporation is expected to be reflected in the gasoline specifications of competitive companies. Since The Texas Company about a year ago started the sale of 400 end point as its principal domestic grade there has been a gradual trend toward more volatile gasolines. Some have met the 400 end-point and high gravity specifications while others have been content to sell a product with an end point between the 437 specification of U. S. Motor gasoline and the 400 end point of the 60-62 product.

The present low prices prevailing for all gasolines and the relatively narrow margin between the low and high-gravity grades is expected to quicken this trend toward the high gravity and low end points gasolines to the consumers. At present in the Mid-Continent Field the average tank car price spread between the 400 and 437 endpoint material does not exceed one-half cent. With natural gasolines selling below the refinery gasolines gravity has largely lost its importance as a cost factor in refinery operations.

BUYS METRO STATIONS

OLEAN, N. Y., Apr. 2.—The Metro Corp., of Delaware in which the Vacuum Oil Co., is largely interested has acquired Metro Stations, Inc., of Olean, N. Y., one of the largest independent gasoline marketing organizations in the East. Metro Stations, Inc., have since the organization of the company in 1920 specialized in the sale of products of the Vacuum Oil Co., especially Gargoyle Mobiloil Metro products are marketed largely through leading independent dealers in New York state and Pennsylvania. B. M. Marcus of Olean, N. Y., becomes president of the Metro Corp., of Delaware.

CHICAGO OIL MARKETING CO

CHICAGO, Apr. 2.—The Chicago Oil Marketing Co., is now organized and doing business with offices in the Lytton Building, corner of State and Jackson Streets. The company as organized under the laws of this State, has a capital of $25,000 held by I. A. Archambault, T. F. Thompson and D. F. Alleb. Mr. Archambault will not give his entire time to the organization being head of the Pennsylvania Oil Co., with headquarters at Evanston and a string of bulk and filling stations extending from Evanston northward to Fort Sheridan.

Mr. Thompson will be the active manager. He has been associated with the oil industry of Chicago for many years as refiner's representative and with marketing companies, his last connection being with the Northland Oil Co., (C. L. Maguire.) They are organized to do a marketing business in all branches and the supplying of the Pennsylvania Oil Co., with its gasoline and burning oils is no small account.

REFINERS PETROLEUM CO.

CHICAGO, Apr. 2.—As a result of the resignation of L. A. Stewart, vice-president of the Refiners Petroleum Co., to go with the Atlas Petroleum Co., new officers have been elected by the Refiners Co., as follows: J. F. Baldwin, vice president; R. M. McNeily, secretary. Both have been with the organization and are well known oil specialists. E. A. McCormach continues as president.

MacEWEN RESIGNS

CHICAGO, Apr. 1. — Announcement has been received here of the resignation of W. E. MacEwen for many years connected with the National Refining Co., of Cleveland and lately its vice president. He has opened offices in the Keith Block in Cleveland.

AMERICAN OIL MEN'S ASSOCIATION PROGRAM FOR ANNUAL CONVENTION

By J. B. Waldo

CHICAGO, Apr. 2.—The program of the annual convention of the American Oil Men's Association which will meet at the Congress Hotel, on April 12 to 14 inclusive will be made up of a minimum of public sessions, the larger part of the three days being left open for the attending oil men to use as they see fit. However the addresses are carefully planned to secure the attention of the oil men, being largely of an educational nature regarding the actual problems of the industry.

There will be no morning sessions. The actual meetings begin each day with a luncheon after which there will be two addresses, except on the last day. This last day's session will be devoted to a discussion as to the best means of improving relations between the refiner, the carload marketer and the actual distributor or jobber.

The entertainment of the delegates has been provided for in various ways. The Chicago Oil Men's Club and other local organizations as well as individual concerns have arranged entertainment features.

On the second evening there will be a dinner-dance. The Gold Room at the Congress Hotel has been reserved for exhibits and all the booths have been sold and a number of additional booths will be erected in the registration room to accommodate some late-comers. The program of addresses is as follows:

Tuesday Luncheon (April 12)

Communications and announcements by James A. Gilmore, secretary.

"Organization and Co-Operation," by Phil Grau, of Milwaukee, Wis.

"Building for the Future." C. B. White, Vacuum Oil Co., to be followed by discussion from the floor.

Wednesday Luncheon (April 13)

"Motor Car Lubrication," Robert B. White, Valvoline Oil Co., Chicago.

"Modern Merchandising at the Filling Station," W. J. Gerwe, Vacuum Oil Co., Chicago.

Afternoon annual meeting and election of directors.

Evening, 7:00 p. m. Dinner-dance.

Thursday Luncheon (April 14)

Session designed as a get-together meeting of refiners, carlot marketers and bulk station distributors. Subjects and speakers:

"Arbitration of Disputes between Refiners, Marketers and Jobbers." Carl O. Beroth, Acme Petroleum Co., Chicago.

"Outage Tables and Calculations." J. A. Stumpf of Henry H. Cross Co.

"Standardizations of Specifications of Domestic Burner Oils."

L. A. Stewart, vice president, Atlas Petroleum Co., Chicago.

PLANT OPERATORS AT RANGER, TEX.

Meeting of the Association of Natural Gasoline Manufacturers, March 22.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

The Question and Answer Department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

FLOW OF VAPOR FROM STILLS

To find the pressure drop in a vapor line is it correct to use Babcock's formula for the flow of steam in pipes, as given in any mechanical engineering handbook, if the correct value for the density of the vapor is used?—J. E. L.

The statement of Babcock's formula is general and represents an equation applicable to vapor, steam, flow in round pipes where the pressure drop is relatively small. The difficulty in applying an equation of this kind to the flow of oil vapors lines in the determination of the friction factor or coefficient; something quite different from the various petroleum vapors than it is for steam. The empirical formulas which have been developed for steam cannot make use of the same coefficients when attempting to apply them to oil vapors, if very exact results are desired.

For a method of determining the friction factor of any fluid under any condition, see Wilson, McAdams, and Seltzer, Ind. Eng. Chem., Vol. 14, page 105, etc., 1922. Also page 86, Principles of Chemical Engineering, by Walker, Lewis, and McAdams.

CENTRIFUGAL AND ROTARY PUMPS COMPARED

What are the essential differences between rotary and centrifugal pumps?—M. T. J.

The following discussion of this question has been furnished by M. D. Aisenstein:

Centrifugal and rotary pumps derive their action from rotary motion. The displacement of fluid is produced in rotary pumps by two intermeshing elements which when revolving act as valves covering and uncovering the suction and the discharge openings so as to act as pistons to force the fluid out of the case. In a centrifugal pump the impeller revolving in a case filled with liquid carries the liquid around. The revolving particles of liquid experience a continuous change in the direction of velocity accompanied by radial acceleration. The product of the acceleration and mass of liquid acted upon is the centrifugal force which moves the liquid out to the circumference of the impeller. As the liquid flows through the impeller it receives energy from the curved vanes which increase the pressure and the velocity. Part of the energy of motion is transformed into pressure by means of the properly designed volute case. The design of a centrifugal pump involves a knowledge of the laws of flow of fluids.

The shape of the vane influences the characteristics of a centrifugal pump, and by selecting certain vane angles, either steep or flat, head-capacity characteristics may be obtained. The head-capacity of a centrifugal pump depends upon the diameter of the impeller, shape of the vane, speed of the prime mover and viscosity of the fluid. The maximum value of the head is equal, approximately, to $\left(\frac{(\text{R. P. M.} \times \text{Impeller diameter})^2}{1840}\right)$

The head of a rotary pump is limited by the power of the prime mover and the strength of the pump. The capacity is affected by the speed, size of the pump, and to a less extent by the viscosity. The design of a rotary pump involves the selection of a certain type of mechanism and consequently a great variety of all possible forms of rotary pumps may be found, which, however, are the same in principle.

The centrifugal pump utilizes the change of momentum which is imparted to the fluid by rotation of the impeller. In rotary pumps the rotating elements exert a positive pressure on fluids.

FATIGUE OF METALS

Is it true that when a piece of steel is cold punched that the material close to the hole will be damaged or weakened? —H. R. D.

When a metal is stressed beyond its elastic limit the friction of the particles, molecules, sliding over each other generates a definite quantity of heat and the energy thus converted is not available for bringing back the mass to its original internal arrangement. This is a condition which results when certain metals are subjected to a series of blows, and the same when cold puched. That is the material at the spot struck, or the material surrounding the hole when cold puched, is severely strained and a hardening results. This hardening once started grows with time and may ultimately result in fracture.

This condition is known as the fatigue of metals. It is frequently illustrated by striking a piece of glass or cast iron so as to make a small crack. This crack will continue to grow without apparent cause until the piece falls apart. Sometimes a long identatation at right angles to the ends of the crack, or small holes placed in the same position will stop the growth.

Cross-section of sucker rod showing the start of a progressive fatigue break which developed while in service.

There was an article on this subject by William H. Laury, on page 118 of The Oil and Gas Journal, June 17, 1926, from which the following is quoted:

A fatigue failure is characterized by the complete absence of elongation or reduction of area at the break. The fracture is sudden and similar to that which is ordinarily expected only from brittle materials. A rotating beam will crack at right angles to the length of the beam failure which is also at right angles to the direction of the stress.

Metals while being subjected to fatigue have been observed under the microscope and it has been found that the crystals of which the metal is composed will allow deformation to occur by movement along certain gliding planes within the crystal. This gliding or slipping is indicated by the appearance of lines running across the crystals and are commonly termed slip bands. As the stress of the material in fatigue is continued, the slip lines become more numerous and also broaden. Finally some of these bands develop into a crack which spreads to other crystals and thus causes failure.

ENDPOINT AND OTHER BOILING POINTS INDICATE QUALITY OF GASOLINE

I would like to know just what endpoint and boiling point mean relative to gasoline. Why is gasoline with an endpoint of 400 and initial 90 better than endpoint 437 and initial of 115 F? Also what does it mean by first 20 per cent over, etc.? In other words I would like a clear definition so that I may actually understand how gasoline is graded so I can look at a distillation test and tell the quality of gasoline indicated.—J. R. G.

When all other characteristics are satisfactory, the performance value of a gasoline depends upon the volatility as measured by distillation. The commonly accepted standard is that adopted by the Federal Specifications, United States Bureau of Mines, Technical Paper 323A. The specifications for gasoline are upper limits, but controlled to some extent by the stipulated minimum recovery which prevents the presence of excessive quantities of very volatile hydrocarbons to which the motor is not adjusted. There must be a balanced composition so as to make an even distillation curve, one free from waves, otherwise the power rate will be unequal.

The different boiling points are determined by observing the vapor phase temperature inside the distillation flask. The temperature existing when the first drop falls from the condenser tube is known as the initial boiling point. The fractional boiling points are the temperature indicatons when the specified 10, 20, 30, etc., percentages have distilled into the receiving graduate. The endpoint, maximum boiling point, is the temperature observed at the end of the distillation. After the observation of the initial boiling point, the liquid continues to collect in the receiver as the distillation proceeds with increasing temperature and when this distillate reaches the 20 cc. mark it would be the first 20 per cent; the second 20 per cent would be the volume at the 40 cc. mark.

When the initial is very low, usually below 115 degrees Fahrenheit, it is an indication of the presence of those hydrocarbons which have low molecular weight. It is desirable to have a low initial, say 80 to 90 degrees Fahrenheit, because this condition insures easy starting of the motor and more starts per gallon. Easy starting of the motor reduces the wear and tear on the starter and battery. When the atmospheric temperatures are low, a lower initial boiling point gasoline should be used than when high temperatures are common.

High endpoints indicate the presence of heavy products. There are more of these present in the 437 degrees Fahrenheit endpoint product than in a 400 degree Fahrenheit. As the endpoint becomes higher, the larger is the quantity of heavy oil, such as kerosene, contained in the motor fuel. High endpoint gasolines tend to produce carbon and other deleterious substances in the engine.

AIR OR GAS LIFT OPERATION

Will you please give me the formula for calculating the energy contained in the air or gas used in air lift operations? An article by S. F. Shaw prompts me to ask if the foot-pounds of energy contained in the gas is a direct function of the quantity of gas that is soluble in the oil at the given pressure? "At Tonkawa the efficiency at 1 per cent is very low but the quantity of gas dissolved in a barrel of oil under 1,200 pounds pressure is approximately 245 cubic feet; consequently the quantity required to lift a barrel of oil at 100 per cent efficiency is only 22.4 cubic feet. Under these conditions the highest efficiency possible to obtain would be

$$\frac{22.4 \times 100}{245} = 9.1 \text{ per cent.}$$

"Kindly explain the derivation of the 22.4 cubic feet.—G. B. C.

The derivation of this formula and its application is explained by Mr. Shaw as follows:

The formula for determining the foot-pounds of work that will be performed by 1 cubic foot of air when expanding from a given absolute pressure to atmospheric pressure at sea level is

$$W = \frac{L}{254 \log\text{-}e \frac{P}{14.7}}$$

In this formula W is the number of foot-pounds of work performed in lifting 1 gallon of water; L is the feet of lift; log-e is Naperian logarithm; P is the absolute pressure of the air at the lower end of the inlet to the eductor pipe.

The foot-pounds of energy contained in each cubic foot of air or gas at the inlet is dependent upon the absolute pressure to which the air is compressed, not dependent on the quantity of gas contained in a given quantity of oil. The pressure alone controls the quantity of energy contained. Gas is more compressible than air, consequently 1 cubic foot of gas contains more energy than a cubic foot of air, and this varies with the pressure. See United States Bureau of Mines Technical Paper 131.

The cubic feet of gas required to lift 1 bbl. of oil, Tonkawa grade, specific gravity 0.82 and assuming an efficiency of 100 per cent, from the above formula is 22.4 when the pressure is 1,200 pounds. But this oil contains approximately 245 cubic feet dissolved in each barrel. It is not possible to segregate this from the oil which has dissolved it, therefore, it must issue with the oil. The highest efficiency possible to reach under these conditions is 9.1 per cent as indicated in the question.

BOOKS AND REFERENCES ABOUT AIR LIFT

What books or reference work would you suggest for studying the theory of air or gas lift operations?—G. B. C.

Text books do not cover the subject of air lift in all its phases but you will find the following of assistance: Pumping of Compressed Air by Ivens, John Wiley and Sons, New York; Compressed Air Power by Daw, Isaac Pitman, London; Compressed Air Plant by Robert Peele, John Wiley and Sons, New York; Air Lifts Employed in Oil Wells by S. F. Shaw, Compressed Air Magazine, August, 1926, and Oil Field Engineering, November, 1926.

Brief Items for Plant Operators

L. F. Bayer Heads Refining Division Of Associated Oil

L. F. Bayer, vice president and general manager of the Tidal Refining Co., Tulsa, Okla., has been placed in charge of the manufacturing operations of the Associated Oil Co. in an executive capacity, according to information from the New York offices of the Tide Water-Associated Oil Co. Mr. Bayer is now in California where the three refineries of

L. F. Bayer

the Associated are located. His successor in the Tidal organization has not been announced. Both the Tidal and Associated are subsidiary organizations of the Tide Water-Associated Oil Co.

Mr. Bayer is widely known in refining and natural gasoline circles of the Mid-Continent Field. He was first employed by the Tidal organizations as an engineer. Two years ago he was made an executive of the Tidal Refining Co., and Tidal Western Refining Co., and placed in charge of refinery and natural gasoline plant operations. He also has served on the manufacturing board of the Tide Water Oil Co.

The Associated Oil Co. has three refineries in California located at Avon, Amorco and Watson. The three plants have a combined crude capacity of 70,000 bbls. daily. General offices of the company are located in San Francisco.

NEW ABSORPTION PLANT

FORT WORTH, Tex., Apr. 1.—Construction work has been started on a new absorption gasoline plant for Maupin and Burnett on the Dunnigan lease, SE SW Section 21, Block Y of A. & B. Survey, in the Borger area of Panhandle, in Hutchinson County. The plant will be a three-unit, Southwester type 75, and upon completion will have a rated capacity of 36,000 gallons daily. Associated with Maupin and Burnett are Nelson C. Stein and A. Sackin, financiers of Hollywood, Calif., who were recent visitors in the Panhandle area.

ENLARGE CYRIL PLANT

The skimming capacity of the Anderson-Prichard Oil Corp., located at Cyril, Okla., is being increased from 1,500 to 2,000 bbls. daily through the installation of additional stills. A new agitator is also being installed.

STANDARD SPECIFICATION TESTS FOR BRITISH SPECIAL NAPHTHAS

Considerable interest has been manifested recently relative to the specifications for special naphthas for the paint and varnish industries. More and more refiners changing their plant operations so as to make a product meeting the demands of the paint trade where the naphthas are used in place of turpentines.

The following report gives the British Standard Specification for White Spirit Type 1. This product is widely used for thinning paints and varnishes.

This report gives the specifications and also the method approved by the British Engineering Standards Association for making the test.

White Spirit Type 1

Description.

1. The material shall be wholly a petroleum product. It shall be "water white," clear, free from water and other visible impurities, and from objectionable odor.

Distillation.

2. The material on distillation of 100 c. c. in the manner described in Appendix A shall yield:—

Not more than 10 cc. below 150° C. (302° F.)
Not less than 80 cc. below 190° C. (374° F.)
Not less than 90 cc. below 200° (392° F.)

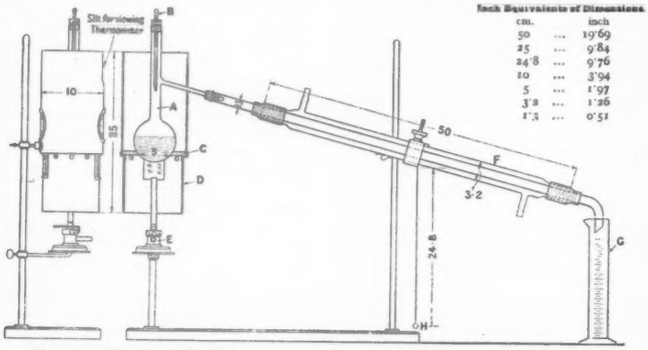


Figure 1—Standard distillation apparatus. All dimensions are in centimeters.

Freedom from Greases.

3. No grease spot or mark shall be visible when about 0.5 cc. of the material is allowed to fall in one place on a sheet of ashless white filter paper and the paper is freely exposed to the air for one hour at a temperature of about 60 degrees Fahrenheit. 15.6 degrees Centrigrade.

(Continued on Page 163)

AMONG THE TECHNICAL MEN

L. D. Mann, assistant general superintendent of the Empire Refineries Inc., has had a steady rise in that company during the 10 years he has been in its employ. In 1917 he graduated from Union College at Schenectady, N. Y., receiving a Bachelor of Science degree. Shortly after graduation he came to Oklahoma, joining the Empire as chemist at its Okmulgee plant.

L. D. Mann

Within a year he was transferred to a refinery which the company at that time owned and operated at Oklahoma City. As a chemist he did research work on fuel burning efficiency and treating. Along with the rapid development of the company he was made assistant superintendent of the Oklahoma City plant in 1918 but was transferred to take charge of the two Cushing refineries just a year later. In 1920 he returned to the Oklahoma City refinery as superintendent but on shutting down the plant there, he was transferred to the Gainesville, Tex., refinery as superintendent. He remained there from 1921 until 1926 having placed the operation of the plant on a very efficient basis. While at the Gainesville plant he solved many problems in connection with the refining of the heavy Healdton, Okla., crude, and developed the manufacture of several specialty oils.

A year ago Mr. Mann was transferred to the general offices of the Empire Refineries, Inc., at Tulsa and made assistant general superintendent of the four refineries which the company operates in Oklahoma and Texas. In addition to the Gainesville refinery, plants are located at Cushing, Ponca City and Okmulgee, Okla., the company constituting one of the largest refinery organizations in the Mid-Continent Field.

CROWN CENTRAL HAVE NEW CRACKING UNITS

The Crown Central Petroleum Corp. now has three Holmes-Manley cracking units in operation at its Houston, Tex., refinery. Due to an error in information in an article appearing on this page in the March 31 issue, these installations were credited to the Deepwater Oil Refineries, Inc., which also has a refinery at Houston. The Deepwater company does not operate any Holmes-Manley cracking units.

The three units at the Crown Central refinery have a rated capacity of 4,000 bbls. The refinery operates exclusively on Mirando, Tex., crude. The tops from the crude are used as charging stock for the cracking units while the residuum from the topping operation is utilized in the manufacture of lubricating oils.

OPERATE CRACKING UNIT AT JOPLIN WITH CRUDE

The Wilhoit Refining Co., is now charging crude oil direct to its cracking unit at its Joplin, Mo., refinery. About 600 barrels daily of Seminole crude is being charged to the unit which has a capacity of 1,000 bbls. daily when operating with gas oil.

Operating at 100 pounds pressure, a substantial yield of gasoline is obtained from the crude. A yield of gas oil suitable for charging stock is also served. The company is charging the crude 20 days of each month and the remainder of the month charging the gas oil recycle stock. The refinery's skimming plant is shut down.

VACUUM CO. TAKES OVER DISTRIBUTION IN OHIO

CHICAGO, Apr. 2.—Effective April 1, the Vacuum Oil Co., took over the distribution of its product in the state of Ohio from the Standard Oil Co. of Ohio, which has been handling it. The company will distribute its products through its own agencies. Branch offices have been located at Cleveland and Cincinnati and warehouses or bulk plants will be located at various points within the state.

It is understood here that the Vacuum Oil Co., plans to become entirely independent of Standard Oil connections and distribute its products exclusively through its own facilities.

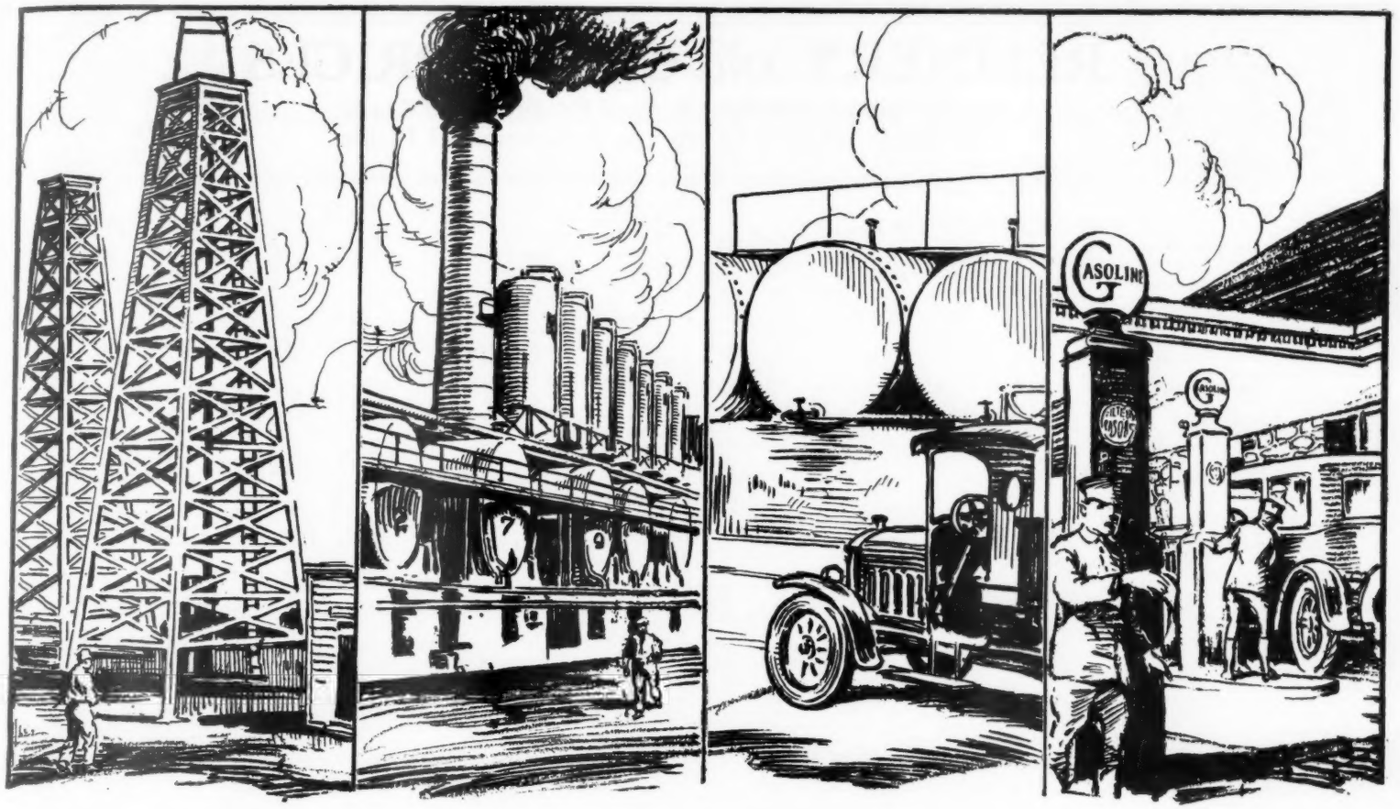
START DUBBS UNITS

The two Dubbs cracking units at the Toledo, Ohio, refinery of the Paragon Refining Co., will start operating this week. The two units which are the first cracking equipment to be installed at the Paragon plant have a capacity of 3,000 bbls. daily. The crude skimming capacity of the refinery was recently increased to 10,000 bbls. daily.

PETROLEUM DIVISION PROGRAM

Twenty papers of interest to the refining industry will be presented at the spring meeting of the petroleum division of the American Chemical Society to be held at Richmond, Va., April 11, 12, 13 and 14. Treating, cracking and sulphur problems will be the principal subjects suggested.

(Recent Patents on Page 190)



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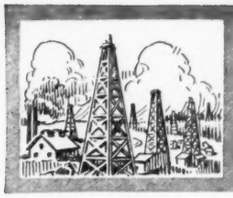


REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Apr. 5		Mar. 29		Mar. 22	
OKLAHOMA (Group 3)—						
50-52 450 end point (Naphtha)	.06¼	.06½	.06½	.06¾	.06¼	.06½
56-58 450 end point	.06¼	.06½	.06¼	.06½	.06	.06¼
58-60 450 end point	.06¼	.06½	.06¼	.06½	.06	.06¼
58-60 450 end point	.06¼	.06½	.06¼	.06½	.06	.06¼
58 60 437 end point (U. S. Motor)	.06½	.06¾	.06½	.06¾	.06¼	.06¾
60-62 400 end point	.07	.07¼	.07	.07¼	.07	.07¼
64-66 375 end point	.07¼	.07½	.07¼	.07½	.07¼	.07½
68-70 360 end point	.07¾	.08	.07¾	.08	.07¾	.08
64-66 437 end point (blend)	.06¼	.06½	.06¼	.06½	.06	.06¼
KANSAS—						
58-60 437 end point (U. S. Motor)	.06¾	.07	.06¾	.07	.06½	.07
NORTH TEXAS—						
48-50 450 end point (Naphtha)	.06	.06¼	.06¼	.06½	.06¼	
56-58 450 end point	.06¼	.06½	.06¼	.06½	.06	.06¼
58-60 437 end point (U. S. Motor)	.06½	.06¾	.06½	.06¾	.06¼	.06½
60-62 400 end point	.06¾	.07	.06¾	.07¼	.06½	.06¾
64-66 390 end point	.07	.07¼	.07	.07¼	.06¾	.07
64-66 375 end point	.07¼		.07¼		.07	.07¼
68-70 360 end point	.07⅝	.07¾	.07⅝	.08	.07¾	.08
64-66 437 end point (blend)	.06¼	.06½	.06¼	.06½	.06	
NORTH LOUISIANA—						
58-60 437 end point (U. S. Motor)	.06½	.06¾	.06½	.06¾	.06½	.06¾
ARKANSAS—						
58-60 437 end point (U. S. Motor)	.06¾	.07	.06¾	.07	.06½	.06¾
PENNSYLVANIA—						
52-54 Naphtha	.09½	.09¾	.09½	.09¾	.09½	.09¾
54-56 Naphtha	.09½	.09¾	.09½	.09¾	.09½	.09¾
58-60 Gasoline	.09	.09¼	.08¾	.09	.09	.09¼
60 Gasoline	.09¾	.10	.09¼	.10	.10	.10¼
62 Gasoline	.10	.10¼	.10	.10¼	.10¼	.10½
64 Gasoline	.10¼	.10½	.10¼	.10½	.10¾	.11
CALIFORNIA——	—					
58-60 437 end point (U. S. Motor) domestic	.07	.08	.07	.08	.09	.10
CHICAGO DISTRICT (Based on Group 3)——						
50-52 450 end point (Naphtha)	.06¼	.06½	.06¼	.06½	.06½	.06¾
56-58 450 end point	.06¼	.06½	.06¼	.06½	.06½	
58-60 437 end point (U. S. Motor)	.06½	.06¾	.06½	.07	.06½	.06¾
60-62 400 end point	.07	.07¼	.07	.07¼	.07	.07¼
64-66 375 end point	.07½		.07½	.07¾	.07½	
68 70 360 end point	.07¾	.08	.07¾	.08	.07¾	.08
64-66 437 end point (blend)	.06½		.06½	.06¾	.06¼	.07

NATURAL GASOLINE

	Apr. 5		Mar. 29		Mar. 22	
OKLAHOMA (Group 3)—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04½		.04½		.04½	.04¾
Grade A, 72-79, 375 e.p., rec. 90%	.05		.05	.05¼	.05	.05¼
Grade BB, 84-92, 375 e.p., rec. 85%	.04	.04⅛	.04	.04¼	.04	
Grade B, 76-83.9, 375 e.p., rec. 85%	.04¼	.04¼	.04¼	.04½	.04¼	
Grade C, 80-90, 375 e.p., rec. 78%	.03⅞	.04	.03¾	.04	.03½	.03¾
NORTH TEXAS—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04½		.04½		.04½	.04¾
Grade A, 72-79.9, 375 e.p., rec. 90%	.05		.05	.05¼	.05	.05¼
Grade BB, 84-92, 375 e.p., rec. 85%	.04	.04⅛	.04	.04¼	.04	.04¼
Grade B, 76-83.9, 375 e.p., rec. 85%	.04¼	.04¼	.04½		.04¼	.04½
Grade C, 80-90, 375 e.p., rec. 78%	.04		.04		.03¾	.04
NORTH LOUISIANA—						
Grade AA, 72-79.9, 375 e.p., rec. 90%	.05¼	.05½	.05¼	.05½	.05¾	.06¼
Grade BB, 76-83.9, 375 e.p., rec. 85%	.05	.05¼	.05	.05¼	.05½	.05¾
Grade C, 80-90, 375 e.p., rec. 78%	.04¼	.04½	.04½	.04¾	.04¾	.05
CALIFORNIA—						
75-86, 375 390 end point	.09	.11½	.09	.11½	.11	.12½
CHICAGO DISTRICT (Based on Group 3)—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04½	.04¾		.04½	.04¾	
Grade A, 72-79.9, 375 e.p., rec. 90%	.05	.05½		.05	.05	.05¼
Grade BB, 84-92, 375 e.p., rec. 85%	.04¼	.04¼		.04	.04	
Grade B, 76-83.9, 375 e.p., rec. 85%	.04¼	.04½		.04¼	.04½	
Grade C, 80-90, 375 e.p., rec. 78%	.03¾		.03½	.03¾	.03½	.03¾

BURNING OIL

	Apr. 5		Mar. 29		Mar. 22	
KANSAS—						
41-43 water white Kerosene	.04¾	.05	.05	.05¼	.05¼	.05½
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04½	.04¾	.04¾	.05	.04¾	.05
42-44 water white Kerosene	.05	.05¼	.05	.05¼	.05¼	.05½
NORTH LOUISIANA—						
41-43 prime white Kerosene	.04¾	.05	.05¼	.05½	.05¼	.05½
NORTH TEXAS—						
41-43 water white Kerosene	.04⅜	.04½	.04½	.04¾	.04¼	.04½
ARKANSAS—						
41-43 water white Kerosene	.04¾	.05	.05	.05¼	.05	.05¼
PENNSYLVANIA—						
43 Kerosene prime white	.06¾	.07	.06½	.06¾	.06½	.06¾
45 Kerosene water white	.07¼	.07⅜	.06¾	.07	.06¾	.07
46 Kerosene water white	.07½	.07¾	.07¼	.07½	.07¼	.07½
47 Kerosene water white	.08	.08¼	.08	.08¼	.08	.08¼
300 Mineral Seal	.08¼	.08½	.08¼	.08½	.08⅜	.08½
CALIFORNIA—						
38-40 water white (high burning test)	.07	.07½	.07	.07½	.07	.07½
Engine distillate, 43-45, 445 end point	.07	.07½	.07	.07½	.07	.07½
Engine distillate, 42-44, 480 end point	.06¾	.07¼	.06¾	.07¼	.06¾	.07¼
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.04¾		.04¾	.05	.05	.05¼
42-44 water white Kerosene	.05		.05¼	.05½	.05¾	.06

FUEL OILS

	Apr. 5		Mar. 29		Mar. 22	
KANSAS—						
24-26 Fuel Oil	1.25	1.30	1.30	1.35	1.37½	1.40
32-36 Gas Oil	.03¼	.03¼	.03¼	.03½	.03⅝	.03¾
38-40 Distillate	.03¾	.04	.04	.04¼	.04½	.04¾
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil	1.05					
18-22 Fuel Oil	1.05	1.07½	1.07½	1.10	1.10	1.12½
22-26 Fuel Oil	1.07½	1.10	1.12½	1.15	1.12½	1.15
24-26 Fuel Oil	1.12½	1.15	1.17½	1.20	1.17½	1.20
26-30 Fuel Oil	1.17½	1.20	1.20	1.25	1.20	1.22½
28-30 Fuel Oil	1.22½	1.25	1.27½	1.30	1.30	1.35
32-36 Gas Oil (dark)	.02⅝	.03	.03⅛	.03¼		.03⅜
32-36 Gas Oil (straw overhead)	.02¾	.03	.03⅛	.03¼	.03¾	.03⅜
36-38 Distillate	.03¼		.03⅜	.03½	.03½	.03⅝
38-40 Straw Distillate	.03¼	.03½	.03½	.03¾	.03¾	.03⅞
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	1.15	1.20	1.20	1.25	1.30	1.35
32-36 Gas Oil (straw)	.02¾	.03	.03⅛	.03¼	.03½	.03⅜
38-40 Straw Distillate	.03¼	.03½	.03½	.03¾	.03⅞	.04⅛
NORTH LOUISIANA—						
18-20 Fuel Oil	1.15	1.20	1.20	1.25	1.20	1.25
32-36 Gas Oil	.03	.03¼	.03¼	.03½	.03⅜	.03¾
ARKANSAS—						
36-38 Distillate	.04		.04¼	.04¼	.04⅛	.04¼
32-36 Gas Oil (straw)	.03¼	.03½	.03¾	.04	.04	.04⅛
16-20 Refinery Fuel Oil	1.05	1.10	1.20	1.22½	1.20	1.22½
GULF COAST (South Texas)—						
Gas Oil	.04¾	.05	.05⅛	.05¼	.05⅛	.05¼
Fuel Oil	1.60	1.65	1.60	1.65	1.60	1.65
PENNSYLVANIA—						
30-34 Fuel Oil	.05⅞	.06	.05¾	.06	.05¾	.06
36-40 Fuel Oil	.06	.06⅛	.06⅛	.06¼	.06⅛	.06¼
CALIFORNIA—						
33-36 Distillate	.04	.04¾	.04	.04¾	.04	.04¾
27-32 Distillate	.03½	.04	.03½	.04	.03½	.04
*15-20 Fuel Oil, Bunkers (at tide water)	.92½	1.04	.92½	1.04	.92½	1.04
15-20 Fuel Oil (cargo lots)	.79	.87½	.79	.87½	.79	.87½
27 plus Diesel	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars) Group 3	1.15	1.20	1.20	1.22½	1.20	1.25
22-26 Fuel Oil (sellers' cars) Group 3	1.15	1.17½	1.17½	1.22½	1.17½	1.20
18-22 (Group 3)	1.07½	1.10	1.10	1.15	1.15	1.17½
16-20 (Smackover)	1.20		1.20	1.22½	1.20	1.25
32-36 Gas Oil (zero)	.03⅛	.03¼	.03⅜	.03½	.03¾	.04
32-36 Gas Oil (industrial)	.02¾	.03	.03¼	.03⅜	.03½	.03¾
36-38 Distillate	.03¼	.03⅜	.03⅜	.03½	.03¾	.04
38-40 Straw Distillate	.03½	.03¾	.03⅝	.03¾	.04	.04⅛

*Bunkers.

LUBRICATING OIL AND WAX

	Apr. 5		Mar. 29		Mar. 22	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06	.06½	.06	.06½	.06	.06½
100 vis., 3 color, 20-25 cold test	.06½	.07	.06½	.07	.06¾	.07
150 vis., 3 color, 20-25 cold test	.08½	.09	.08½	.09	.08½	.09
150 vis., 4 color, 20-25 cold test	.08¼	.08¾	.08¼	.08¾	.08¼	.08¾
180 vis., 3 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
180 vis., 4 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
180 vis., 5 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
200 vis., 3 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
200 vis., 4 color, 23-28 cold test	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
200 vis., 5 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
240 vis., 3 color, 25-30 cold test	.13¼	.14	.13¼	.14	.13¼	.14
240 vis., 4 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
240 vis., 5 color, 25-30 cold test	.12½	.13	.12½	.13	.12½	.13
280 vis., 3 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
280 vis., 4 color, 25-30 cold test	.15¼	.15½	.15¼	.15½	.15¼	.15½
280 vis., 5 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
Cylinder Stocks:						
600, steam refined, light green	.07½	.10	.07½	.10	.07½	.10
600, steam refined, dark green	.05	.06	.05	.06	.05	.06
190-200 vis. @ 210 Bright Stock	.31	.33	.31	.33	.31	.33
150-160 vis. @ 210 Bright Stock	.26		.26		.26	
Waxes:						
124-126 White Crude Scale Wax	.02¾	.03	.03	.03¼	.03¾	.04
PENNSYLVANIA—						
34 Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
34 Sundebloom Neutral	.08½	.08¾	.08½	.08¾	.08½	.08¾
36 Miners' Neutral	.07¼	.07½	.07¼	.07½	.07¼	.07½
150, 3 color	.28¼	.28½	.28¼	.28½	.28¼	.28½
180, 3 color	.29¾	.30	.29¾	.30	.29¾	.30
200, 3 color	.32½	.33	.32½	.33	.32½	.33
220, 3 color	.34¼	.34½	.34¼	.34½	.34¼	.34½
600, steam refined	.10½	.10¾	.10¼	.10½	.10¼	.10½
635, steam refined	.12¾	.13	.12¼	.12½	.12¼	.12½
650, steam refined	.14¼	.14½	.13¼	.13½	.13¼	.13½
600, Pennsylvania flash	.17½	.18	.18	.18½	.18	.18½
630, Pennsylvania flash	.28½	.29	.28½	.29	.28½	.29
*550, E filtered	.18	.18½	.18	.18½	.19½	.20
*600, E filtered	.19½	.20	.19½	.20	.20	.20¼
600, E filtered	.18	.18½	.18	.18½	.18¼	.18½
600, D filtered	.25¼	.25¾	.25¼	.25¾	.25¼	.25¾
550, E filtered	.17½	.18	.17½	.18	.17½	.18
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.34½	.35	.35½	.36	.35½	.36
†122-124 White Crude Scale Wax	.03⅜	.03½	.03⅞	.04	.03⅞	.04
†124-126 White Crude Scale Wax	.03½	.03⅝	.03⅞	.04	.03⅞	.04

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.07½	.08½	.07½	.08½	.07½	.08½
No. 3 color, 200 vis., pale oil	.10½	.11½	.10½	.11½	.10½	.11½
No. 3 color, 300 vis., pale oil	.11½	.12½	.11½	.12½	.11½	.12½
No. 3½ color, 500 vis., pale oil	.13½	.14	.13½	.14	.13½	.14
No. 4 color, 750 vis., pale oil	.16	.16½	.16	.16½	.16	.16½
No. 5 to 6 color, 200 vis., red oil	.08½	.09½	.08½	.09½	.08½	.09½
No. 5 to 6 color, 300 vis., red oil	.10	.11	.10	.11	.10	.11
No. 5 to 6 color, 500 vis., red oil	.11½	.12½	.11½	.12½	.11½	.12½
No. 5 to 6 color, 750 vis., red oil	.14½	.15½	.14½	.15½	.14½	.15½
CALIFORNIA—						
130 vis., 2½-3 color	.10½	.11	.10½	.11	.10½	.11
200 vis., 2½-3 color	.11	.11½	.11	.11½	.11	.11½
300 vis., 3 -3½ color	.11½	.12	.11½	.12	.11½	.12

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

350 vis., 3½-4	color	.12	.13	.12	.13	.12	.13
400 vis., 3½-4	color	.13	.15½	.13	.15½	.13	.15½
Red Neutral:							
200 vis., 4½-5	color	.09½	.10½	.09½	.10½	.09½	.10
300 vis., 5 -6	color	.10½	.11½	.10½	.11½	.10½	.11½
400 vis., 5 -6	color	.12	.13½	.12	.13½	.12	.13½
500 vis., 4½-5	color	.13½	.14½	.13½	.14½	.13½	.14½
500 vis., 5 6½	color	.12½	.13½	.12½	.13½	.12½	.13½
600 vis., 6½ plus	color	.13½	.14½	.13½	.14½	.13½	.14½

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Apr. 5	Mar. 29	Mar. 22
Gasoline, U. S. Motor, 58-60 437	.09½	.10½	.10½
Kerosene, water white, 41-43	.07½	.07½	.07½
*Fuel Oil, bunker "C," 14-16, per bbl.	1.75	1.75	1 75
*Fuel Oil, Diesel, 28-30, per bbl.	2.40	2.40	2.50
Gas Oil, 28 plus	.06	.06	.06¼
25 pale Paraffin Oil	.12	.12	.12
28 pale Paraffin Oil	.07½	.07½	.07½
285 red Paraffin Oil	.13	.13	.13
250 red Paraffin Oil	.12	.12	.12
225 red Paraffin Oil	.11	.11	.11
200 red Paraffin Oil	.10	.10	.10
Refined Wax:			
120-122 a.m.p., per lb.	.04	.04¼	.05
125-127 a.m.p., per lb.	.04⅛	.04⅜	.05¼
130-132 a.m.p., per lb.	.04¾	.05	.05½
135-137 a.m.p., per lb.	.05	.05¼	.06
Petrolatum, in bbls.; carload lots, per lb.:			
Dark green	.01⅞	.02	.02
Amber	.03⅜	.03⅜	.03⅜
Extra amber	.03¾	.03¾	.03¾
Cream	.05½	.05½	.05½
Lily white	.07	.07½	.07½
Snow white	.08⅛	.08½	.08½

*Lighterage 6.5c a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Apr. 5	Mar. 29	Mar. 22
Gasoline, U. S. Motor, 58-60 437, in cases	.2440	.2440	2465
Kerosene, standard white, in cases	.1665	.1715	.1715
Kerosene, water white, in cases	.1765	.1815	.1815
600 steam refined cylinder stock, in bbls.	.19	.19	.19
635 steam refined	.21	.21	.21
650 steam refined	.23	.23	.23
600 Pennsylvania flash	.27	.27	.27
630 Pennsylvania flash	.34	.34	.34
600 Warren E	.26	.26	.26
600 Oil City E	.24½	.24	.24
Light 135 Bright Stock	.44	.45	.45
Dark 135 Bright Stock	.42	.43	.43

LOS ANGELES EXPORT PRICES

	Apr. 5		Mar. 29		Mar. 22	
Kerosene water white	.05¾	.06½	.05¾	.06½	.05¾	.06½
U. S. Motor Gasoline, 53-55 437 e.p.	.07¾	.08	.07¾	.08	.08	.08½

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

*Corsicana heavy (March 14, 1927) $1.00
Other fields ..... See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

*Carson County ..... $ .95
*Hutchinson County ..... .95
Gray-Wheeler Counties ... See gravity table

*Humble Oil & Refining Co., Magnolia Petroleum Co., Gulf Pipe Line Co. and Kay County Gas Co., March 14.

WEST TEXAS

*Iatan (Same as North Texas)
Crane-Upton-Crockett ..... See gravity table

*Includes Howard County and Westbrook Fields. Kay County Gas Co. pays $1.16 for Howard County crude, effective March 12.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (March 17) $1.00
Bellevue (Feb. 24, 1927) 1.25
Urania (March 16, 1927) 1.00
East El Dorado (March 16) 1.00
Other fields ..... See gravity table

Note—Cotton Valley and Bellevue, Standard Oil Co. of Louisiana, Gulf Refining Co. and Magnolia Petroleum Co.; Urania, Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, High Island, Pierce Junction and Spindletop.)

‡Grade A (March 14) $1.20
Grade B ..... See gravity table
*Jennings, La. (March 14) 1.05
†Saratoga, Batson, Dayton (March 14, 1927) 1.20
**Markham March 14 ..... 1.00

*Gulf Pipe Line Co. †Sun Pipe Line Co. ‡Humble Oil & Refining Co. and other major buyers. **The Texas Company.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

*Luling (March 14) $1.05
†Mirando (March 14) 1.00
Rockdale-Minerva (Milam County) ... 1.25
*Thrall ....
Callihan (May 15) 1.75
Lytton Springs (Lockhart) See gravity table
Somerset ..... See gravity table

*Posted by Magnolia Petroleum Co. Thrall prices same as north central Texas less 19⅛ cents per cwt. freight.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.

ROCKY MOUNTAIN STATES
Ohio Oil Co.-Midwest Refining Co.
(Effective March 14)

Rock Creek, Wyo. (March 12) $1.25
Salt Creek ..... See gravity table
Big Muddy (March 12) 1.25
Mule Creek (February 23) 1.30
Grass Creek, light (March 12) 1.33
Grass Creek, heavy ..... .68
Elk Basin (March 12) 1.33
Lance Creek (March 12) 1.33
Poison Spider 1.00
Notches ..... .65
Rex Lake (February 23) 1.10
Osage 1.33
Lost Soldier (contract) (May 17) 1.60
Greybull-Torchlight 1.33
Hamilton Dome 1.35
Cat Creek (Mont.) 1.33
Sunburst (Mont.) (October 5) 1.35
Artesia (March 12) 1.00
Rogback (N. Mex.) (March 14) 1.30

Note: Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

EASTERN STATES
Joseph Seep Purchasing Agency
(Effective March 7)

Penna Grade Oil in New York Transit Line (New York) $3.15
Bradford District Oil in National Transit Lines (Pennsylvania) 3.15
Penna Grade Oil in National Transit Lines (Pennsylvania) 3.05
Penna Grade Oil in Southwest Pennsylvania Lines (West Virginia) 3.05
Penna Grade Oil in Eureka Pipe Line lines (Pennsylvania) 3.00

(Continued on Page 160)

CRUDE OIL GRAVITY PRICE TABLE

Gravity—	Okla., Kans., N. C. Tex., La.-Ark. 1	Smackover, Ark. 2	Stephens, Ark. 3	Wheeler and Gray Counties, (Texas Panhandle) 4	Crane, Upton Crockett Counties (West Texas) 5	Salt Creek, Wyo. 6	Grade B & Light Crude (G. Coast) 7	Somerset (South Central Texas) 8
Below 24	....	1.00	....	....	....	....	....	....
24 to 24.9	....	1.25	....	....	....	....	....	....
Below 25	....	....	....	....	....	....	1.15	....
25 to 25.9	....	....	....	....	....	....	1.17	....
Below 26	....	....	....	....	.70	....	....	....
26 to 26.9	....	....	....	....	.72	....	1.19	....
27 to 27.9	....	....	....	....	.74	....	1.21	....
Below 28	****	....	1.00	....	....	....	....	....
28 to 28.9	1.12	....	1.02	.80	.76	....	1.23	1.12
29 to 29.9	1.14	....	1.04	.82	.78	1.14	1.25	1.14
30 to 30.9	1.16	....	1.06	.84	.80	1.16	1.27	1.16
31 to 31.9	1.18	....	1.08	.86	.82	1.18	1.29	1.18
32 to 32.9	1.20	....	1.10	.88	.84	1.20	1.31	1.20
33 to 33.9	1.22	....	....	.90	.86	1.22	1.33	1.22
34 to 34.9	1.24	....	....	.92	.88	1.24	1.34	1.24
35 to 35.9	1.26	....	....	.94	.90	1.26	1.37	1.26
36 to 36.9	1.28	....	....	.96	.92	1.28	....	1.28
37 to 37.9	1.30	....	....	.98	....	1.30	....	1.30
38 to 38.9	1.32	....	....	1.00	....	....	....	1.32
39 to 39.9	1.34	....	....	1.02	....	....	....	....
40 to 40.9	1.36	....	....	1.04	....	....	....	....
41 to 41.9	1.38	....	....	1.06	....	....	....	....
42 to 42.9	1.40	....	....	1.08	....	....	....	....
43 to 43.9	1.42	....	....	1.10	....	....	....	....
44 to 44.9	1.44	....	....	1.12	....	....	....	....
45 to 45.9	1.46	....	....	....	....	....	....	....
46 to 46.9	1.48	....	....	....	....	....	....	....
47 to 47.9	1.50	....	....	....	....	....	....	....
48 to 48.9	1.52	....	....	....	....	....	....	....
49 to 49.9	1.54	....	....	....	....	....	....	....
50 to 50.9	1.56	....	....	....	....	....	....	....
51 to 51.9	1.58	....	....	....	....	....	....	....
52 and above	1.60	....	....	....	....	....	....	....

Column 1—Oklahoma: Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., Magnolia Petroleum Co., March 12; Carter Oil Co., The Texas Company, March 14.

North Central Texas—(Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs [Southwest Texas], Iatan and Panola [Magnolia only], Currie, Nocona, Moran and Corsicana light): Magnolia, Texas, Prairie, Sinclair and Gulf, March 12; The Texas Company, Humble Oil & Refining Co., March 14.

Kansas—Prairie, Sinclair, Magnolia, March 12; Carter, Texas, March 14.

Arkansas and North Louisiana—(Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer and El Dorado only): Standard Oil Co. of Louisiana, March 14; The Texas Company, March 14; Magnolia Petroleum Co., Pine Island, Haynesville and Bull Bayou, El Dorado, March 14; El Dorado, March 14; Gulf Pipe Line Co., March 14.

Column 2—Standard Oil Co. of Louisiana, The Texas Company, Gulf, Atlantic, March 17, Magnolia Petroleum Co. (March 16) posted price of $1.00 for below 24 degrees and $1.15 for 24 and above. Louisiana Oil Corp. posted following prices effective March 16: Below 24, $1.00; 24 to 27.9, $1.15; 28 to 28.9, $1.17; 29 to 29.9, $1.19; 30 and above $1.21.

Column 3—Atlantic Oil Producing Co., March 14.

Column 4—Humble Oil & Refining Co. and Gulf Pipe Line Co., March 14.

Column 5—Humble Oil & Refining Co., Kay County Gas Co. and Gulf Pipe Line Co., March 14.

Column 6—Midwest Refining Co., March 12, 1927. All crude over 37 gravity, $1.30 per bbl.

Column 7—Humble Oil & Refining Co. and other major buyers (schedule ends "35 and above"), March 14, with exception of Magnolia Petroleum Co. which stops at 31 degrees gravity. Sun Pipe Line Co. posts 2 cents differential for each degree above 35 gravity and $1.47 for 40 gravity and above.

Column 8—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., March 12.

****Prices for crude below 28 gravity: Oklahoma, Kansas and Texas, Magnolia Petroleum Co., $1.10, March 12, 1927; Arkansas, North Louisiana, March 14. Other companies 2 cents less for each degree with exception of Humble Oil & Refining Co. which pays $1.13 for crude below 28 degrees gravity.

CALIFORNIA CRUDE PRICES
*Standard Oil Co.-Union Oil Co. (Effective April 1, 1927)

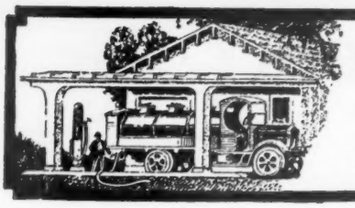
Gravity—	Fullerton Seal Beach Long Beach Huntington Beach Richfield Rosecrans-Dom'guez Torrance-Inglewood 1	Whittier La Habra Montebello 2	Kern River Newhall-McKittrick Midway-Sunset Elk Hills Lost Hills Belridge Buena Vista Hills 3	Coyote 4	Santa Fe Springs 5	Coalinga 6	Wheeler Ridge 7	Santa Maria Ventura, Orcutt Salt Lake 8
14°	.85	.85	.75	.85	....	.75	.75	.85
15°	.85	.85	.75	.85	....	.75	.75	.85
16°	.85	.85	.75	.85	....	.75	.75	.85
17°	.85	.85	.75	.85	....	.75	.75	.85
18°	.85	.85	.75	.85	....	.75	.75	.85
19°	.85	.85	.75	.85	....	.75	.75	.85
20°	.85	.85	.77	.85	....	.76	.76	.85
21°	.86	.85	.79	.86	.85	.77	.77	.85
22°	.87	.85	.81	.87	.85	.78	.78	.85
23°	.88	.85	.83	.88	.85	.79	.79	.85
24°	.89	.85	.85	.89	.85	.80	.80	.85
25°	.90	.86	.87	.90	.86	.81	.81	.86
26°	.92	.87	.89	.91	.87	.83	.82	.87
27°	.94	.88	.91	.92	.88	.85	.83	.88
28°	.96	.89	.93	.93	.89	.87	....	.89
29°	.98	.90	.96	.94	.91	.89	....	.91
30°	1.00	.91	.99	.95	.93	.91	....	.93
31°	1.00	....	1.02	....	.95	.93	....	.95
32°	1.06	....	1.05	....	.97	.95	....	.97
33°	1.09	....	1.08	....	.99	.97	....	.99
34°	1.12	....	1.11	....	1.01	.99	....	1.01
35°	1.15	....	....	....	1.03	1.01	....	1.03
36°	1.18	....	....	....	1.06	....	....	1.06
37°	1.21	....	....	....	1.09	....	....	1.09
38°	1.24	....	....	....	1.12	....	....	1.12
39°	1.27	....	....	....	1.15	....	....	1.15
40°	1.30	....	....	....	....	....	....	....
41°	1.33	....	....	....	....	....	....	....
42°	1.36	....	....	....	....	....	....	....

*Column 1—Long Beach, Seal Beach and Huntington Beach crudes, 14 to 32 degrees, inclusive; Richfield and Fullerton, 14 to 30 degrees; Torrance and Inglewood, 14 to 28 degrees; Dominguez, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.

Column 2—Whittier crude, 14 to 22 degrees; Montebello, 14 to 30 degrees.

Column 3—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 33 degrees; Lost Hills and Belridge, 14 to 34 degrees.

Column 8—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura and Orcutt, 14 to 39 degrees. Posted only by Union Oil Co.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns, April 5.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Chicago dist.	16.0	18 0	...	13 0
Decatur, Ill.	16 2	18.2	...	13 1
E. St. Louis	15 1	17 35	...	12 2
Joliet	16 4	18 4	...	13.3
Peoria	16 2	18 2	...	13 1
Quincy	14.2	16.2	...	11.4
Davenport, Ia.	18 5	20.5	2 0	13 3
Des Moines	16 0	18 0	2 0	13.3
Keokuk	18.5	20 5	2.0	13 3
Sioux City	18 1	20 1	2.0	12.9
Duluth, Minn.	19 5	21.5	2 0	13 9
Minneapolis	17 2	19.2	2 0	13 9
LaCross, Wis.	19 2	21 2	2 0	14.0
Milwaukee	18.1	20 1	2 0	12 9
Madison	18 3	20 3	2 0	13.1
Detroit, Mich.	18 8	20 8	2 0	14.7
Grand Rapids	18 7	20 7	2.0	14 6
Saginaw	18.9	20 9	2 0	14 8
Evansville, Ind.	19 0	21 0	3.0	14.0
Ft. Wayne	19 4	21.4	3 0	14 4
Indianapolis	19 2	21.2	3 0	14 2
S. Bend	19 4	21 4	3.0	14 4
Fargo, N. D.	20 9	22 9	2 0	15 9
Huron, S. D.	19 0	21.0	3.0	14 9
Sioux Falls	19.3	21.3	3 0	14 4
*K. C., Mo.	18 0	20 0	3.0	11 6
*Springfield	18.8	20 8	3.0	12 5
*St. Louis	17 6	19 9	2 5	12.3
*St. Joseph	18 5	20 5	3 0	12 2
Wichita, Kans.	16 8	18.8	2 0	11 8
Bartlesville, Ok.	17.0	19 0	3.0	11 8

NAPHTHAS	Tank wagon	Tank car
Oleum spirits	18 0	12.5
V. M. & P. naphtha	20 0	14.5
Cleaner's naphtha	20.0	14 5
Stanisol	21.0	....

Tankwagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL

Less than 100 gallons	10.0
100 to 799 gallons	9.0
800 or more gallons	8.5

Tankwagon prices of gasoline subject to discount of 1 cent a gallon on dumps of 50 gallons or more throughout territory except Chicago district where discount applies only to dumps of 100 gallons. Kerosene subject to 1 cent discount on dumps of 50 gallons or more.

In addition the following quantity discount schedule is in effect on monthly tankwagon deliveries of gasoline 6,000 gallons or more, 1½ cents; 10,000 gallons or more, 2 cents; 15,000 gallons or more, 3 cents. In the Chicago district purchases of 750 to 2,000 gallons a month discounted one-half cent; and, 2,000 to 6,000 gallons, three-quarters cent. If the quantity bought during the year is 12 times the monthly agreed purchases the discount is paid or credited on the entire quantity less monthly payments.

Monthly service station deliveries of 200 gallons or more, and annual deliveries of 2,400 gallons or more are discounted 2 cents.

*State tax 2 cents; remainder city tax.

SOUTHWESTERN DISTRICT

*Magnolia Petroleum Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Dallas, Tex.	15.0	19.0	3.0	15.0
Fort Worth	15 0	17 0	3 0	13 0
Houston	16.0	19.0	3.0	15.0
San Antonio	15 0	18 0	3.0	11.0
El Paso	17.0	19.0	3.0	16.0
Texarkana	15 0	18 0	3 0	15 0
Muskogee, Ok.	16.0	19.0	3.0	10.0
Okla. City	16.0	19.0	3.0	10.0
Tulsa	16.0	19.0	3.0	10.0
Little Rock	17.0	20.0	4.0	12.0
Ft. Smith, Ark.	17.0	20.0	4.0	12.0

*The following is the schedule of discounts on quantity gasoline sales adopted by the Magnolia Petroleum Co. in Oklahoma: Over 750 gallons a month, ½c; over 2,000 gallons, ¾c; over 3,000 gallons, 1c; over 4,500 gallons, 1¼c; over 6,000 gallons, 1½c; over 9,000 gallons, 1¾c; over 10,000 gallons, 2c. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1c; over 300 gallons a month, 1¼c; over 400 gallons, 1½c; over 500 gallons a month, 1¾c; over 600 gallons, 2c. The same rule applies for annual purchases as in the tankwagon discounts.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
*New Orleans	17 5	18 5	3 0	14 0
Alexandria	15.0	18.0	2.0	14.0
Baton Rouge	14.0	17 0	2 0	12 5
LaFayette	15.0	18.0	2.0	13.5
Lake Charles	15.5	18.5	2.0	14.0
Shreveport, La.	14.0	17.0	2.0	12.0
Memphis, Tenn.	17.0	20.0	3.0	14.0
Chattanooga	19.5	22.5	3.0	15.0
Knoxville	19.5	22.5	3 0	15.0
Nashville	18.0	21.0	3.0	15.0
Bristol	19.0	22.0	3.0	14.0
Lit. Rock, Ark.	17.0	20.0	4.0	12.0

*Tax of 3c includes city tax of 1c.
*Louisiana kerosene prices include 1-cent state tax and 1 cent parish tax.

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
All Ohio points	20.0	22.0	2.0	15 0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Atlanta, Ga.	21 0	24 0	4 0	17 0
Augusta	21 0	24 0	4 0	16.0
Macon	21 0	24 0	4 0	17.0
Savannah	21 0	23 0	4 0	16 0
Birm'ghm, Ala.	21 0	24.0	4.0	16.5
Mobile	20.0	23.0	4.0	16.0
Montgomery	22 0	25 0	5 0	17 5
Clarksd'le, Miss.	19.0	22 0	4 0	14 5
Jackson	19.0	22 0	4 0	15 5
Natchez	18 5	21 5	4 0	15 0
Gulfport	20 5	23 5	6 0	15 0
Vicksburg	18.5	21 5	4 0	15 0
Jack'ville, Fla.	19 0	22 0	4 0	15 0
Miami	21.0	24 0	4 0	16 5
Pensacola	20 0	23 0	5 0	16 0
Tampa	19.0	22.0	4 0	15 0
Covington	21 0	24 0	5 0	16 0
Louisville	20 0	23 0	5 0	16 0
Lexington, Ky.	20.0	23 0	5 0	16.0

In addition to the state tax of 2c on gasoline, Montgomery has city tax of 1c on gasoline and ½c on kerosene. Prices in Georgia include ½c inspection fee on gasoline and kerosene; in Florida, an inspection fee of 0.125c; in Alabama, an inspection fee of ½c on kerosene only. Pensacola tax includes 1c city levy. Gulfport tax includes privilege tax of 2c in addition to state tax.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Pittsburgh, Pa.	17 0	*22 0	...	15 0
Philadelphia	16.0	20 0	...	15 0
Scranton	17.0	*22 0	...	15 0
Allentown	17 0	*22 0	...	15.0
Altoona	17 0	*22 0	...	15 0
Erie	15 0	*22.0	...	16 0
Dover, Del.	20 0	23 0	3 0	15 0
Wilmington	20 0	23 0	3.0	15.0
Spring'd, Mass.	21.0	23.0	...	17.0
Worcester	21.0	23.0	...	17.0
Boston	21.0	23.0	...	16.0
Providence, R.I.	22.0	24.0	1.0	17.0
Hartford, Conn.	23.0	25.0	2.0	17.0
New Haven	23.0	25.0	2.0	17.0

*Includes tax of 2 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Atlantic City	17 0	....	...	14 0
Newark, N. J.	17 0	19 0	...	14 0
Annapolis, Md.	21.0	...	4.0	14 0
Baltimore	21 0	22 0	4 0	10 0
Cumberland	21.0	22 0	4 0	14 0
Washington	19 0	22 0	2 0	12 0
Danville, Va.	21.5	....	4 5	14 0
Norfolk	21 5	24 5	4 5	14 0
Petersburg	21 5	24 5	4 5	14 0
Roanoke	21 5	24 5	4 5	14 0
Richmond	21.5	24.5	4.5	14.0
Charleston, W. Va.	20.5	23.5	3 5	14.0
Keyser	20 5	....	3 5	14 0
Parkersburg	20.5	23.5	3 5	14 0
Wheeling	20 5	23 5	3 5	14 0
Charlotte, N. C.	21 0	24 0	4.0	14 0
Hickory	21 0	24.0	4 0	14 0
Mt. Airy	21 0	24 0	4 0	14 0
Salisbury	21 0	24 0	4 0	14 0
Charl'stn, S. C.	22.0	25 0	5 0	14 0
Columbia	22.0	22.0	5.0	15.0

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Albany, N. Y.	20.0	22 0	...	16 0
*New York	20.0	24 0	...	16 0
Buffalo	19 0	22 0	...	14.0
Rochester	19 0	22 0	...	14 0
Syracuse	20 0	22 0	...	16 0
Boston, Mass.	20.0	22 0	...	15.0
Augusta, Me.	23.0	27 0	3.0	16 0
Manchester, N. H.	22 0	24 0	3 0	16.0
Burlington, Vt.	22.0	24.0	3.0	16.0

*Price in steel barrels.

PACIFIC COAST DISTRICT

Standard Oil Co. (California

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
San Francisco	13 0	17 0	2 0	15.5
Los Angeles	10.5	16 5	2 0	15 5
Fresno	13 0	17.0	2.0	17 5
Reno, Nev.	19 0	23 0	4 0	19 0
Portland, Ore.	14.0	18 0	3 0	16 5
Seattle, Wash.	13 0	17 0	2 0	16.5
Tacoma	13 0	17.0	2 0	16 5
Spokane	17.0	21 0	2 0	20 5
Phoenix, Ariz.	19 0	23 0	3.0	20.5

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Omaha	16 25	19 25	2.0	13 25
McCook	19.75	21.75	2.0	14.75
Norfolk	18 0	20.0	2 0	13.75
N. Platte	19.75	21.75	2.0	14.50
Scottsbluff	19 25	21.25	2 0	14.00

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Gasoline Service station	Gasoline Incids tax of	Kero. Tank wagon
Denver, Colo.	17 0	19 0	2 0	15 5
Pueblo	17 0	18 0	2 0	15.5
Grand Junction	20 5	22.5	2 0	19 0
Casper, Wyo.	18 0	20 0	2 0	14 0
Cheyenne	20 0	22.0	3.0	15.5
Butte, Mont.	22 0	22 0	3 0	19 0
Helena	22 0	24 0	3.0	19 0
Salt Lake, Utah	21 0	23 0	3 5	17 0
Boise, Idaho	23 5	25 5	4 0	19 0
Twin Falls	23 5	25.5	4.0	19.0
Albuquerque, N. M.	22 0	25 0	5.0	18.0

TANKWAGON CHANGES

February 28. The Atlantic Refining Co. reduced the Erie, Pa. gasoline tankwagon price 2 cents. This was not included in previous reports due to a delayed confirmation of the change.

March 13. The Standard Oil Co. of Indiana reduced the gasoline tankwagon and service station price 2 cents at Quincy, Ill. and 1½ cents at Huron, S. D.

April 1. The Standard Oil Co. of New Jersey advanced the tankwagon and service station price on gasoline in Maryland 2 cents to cover the increase in the tax effective on that date from 2 cents to 4 cents.

April 1. The Standard Oil Co. of California reduced the gasoline tankwagon and service station price 1 cent in Los Angeles.

April 4. The Atlantic Refining Co. reduced the tank wagon and service station gasoline prices 1 cent throughout Pennsylvania and Delaware.

Western Gasoline Market Continues Low Price Trend

LOS ANGELES, Calif., Apr. 2.—After over a week of uncertainty as to the retail price of gasoline quoted by all companies, gasoline is now selling at 14½ cents per gallon including state tax at all company-owned service stations. On March 22, the Pan American Petroleum Co., reduced their retail price of gasoline 2 cents under the prevailing price at that time, the new price being 14½ cents per gallon, including tax. None of the other marketing companies followed this move until Thursday, March 31, at noon, when the Standard Oil Co. announced that they would meet Pan American Petroleum Co.'s price and sell gasoline at their service stations in Los Angeles at 14½ cents per gallon. This move was immediately followed by the other marketing companies and the prevailing price for gasoline in Los Angeles at present is 14½ cents per gallon.

Since the Pan American Petroleum Co. markets only in Southern California, the new reduction announced by the Standard Oil Co., is effective only in Southern California, making the variations in price as compared with the other part of the state and the Pacific Coast in general much larger than under normal conditions. The latest price reduction is the result of competition alone and was forced upon the other companies by the Pan American Petroleum Co. During the past week at a 2-cent lower price, Pan American Petroleum Co.'s service stations have been selling a huge gallonage, their business being so great that their own tank trucks were not sufficient to keep their stations supplied with gasoline and it was necessary for them to hire outside equipment to meet the demand.

All the other companies lost gallonage during this period and the only move they could make was to meet the lower price in order to hold their share of gasoline sales. At the reduced price none of the large marketing companies are offering more than a 4-cent differential to independent service stations. The increasing of this differential to 6 cents by some of the major marketing companies was the spark that set off the present gasoline war but with retail prices at the low level in force at the present time any differential more than 4 cents is absolutely out of the question.

Gasoline Stocks Increase

Figures just released by the Bureau of Mines covering California operations during February show that on the whole stocks decreased. Stocks of gasoline, however, increased by over 400,000 bbls. and amounted at the end of the month to 12,656,542 bbls. Production during the same period amounted to 4,526,755 bbls., or a daily average of 161,670 bbls. The daily production during February showed an increase over January of 3,315 bbls.

During February, production of natural gasoline decreased slightly. The daily production was about 100 bbls less than during January. During the same period utilization decreased by 3,252 bbls per day under January, stocks increasing during the month by 91,060 bbls. At the end of February there was 459,695 bbls of natural gasoline on hand which is between 16 and 17 days supply at the current rate of consumption.

LOMBARDI SUCCEEDS HILLMAN

Standard Oil Co. of California board has elected M. E. Lombardi, assistant general manager of production and former vice president and general manager of Pacific Oil, a director to succeed F. H. Hillman, who retires as vice president and director after 48 years' service with Standard Oil.

CRUDE OIL PRICES

(Continued from Page 159)

Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	$ 2.86
Cabell Grade Oil in Eureka Pipe Line Lines (West Virgin'a) March 16	1.40
Corning 35-cent grade oil in Buckeye Pipe Line Co.'s line (March 17)	1.40
Corning 25-cent grade oil in Buckeye Pipe Line Co.'s lines (March 17)	1.55
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) March 16	1.50
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky)	.95
Keister (Pennsylvania)	1.25

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective March 14)

Lima	$1.71
Wooster	1.77
Illinois	1.60
Indiana	1.48
Princeton	1.60
Plymouth	1.38
Waterloo (Nov. 17, 1926)	1.35
*Western Kentucky	1.85
†Cumberland, Barren, Clinton and Monroe Counties, Kentucky (March 16)	1.50
‡Oil in lines of Stoll Oil Refining Co. in Oil City, Ky. (March 16, 1927)	1.50
†Clay County, Tennessee (November 18)	2.35
§Oil Springs (Canada)	2.18
§Petrolia (Canada)	2.11

*Posted by Ohio Oil Co.
†Posted by Paragon Development Co.
‡Posted by Stoll Oil Refining Co.
§Posted by Imperial Oil Co., Ltd.

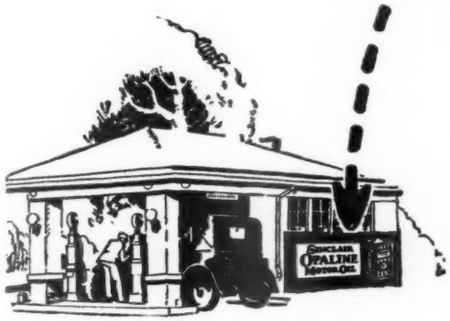
MEXICO

(Effective May 13)

*Tuxpam light (f.o.b. Mex. ports)	$1.35
†Panuco heavy (f.o.b. Mex. ports)	1.15
Tuxpam (New York)	2.15
Panuco (New York)	1.80

*Plus 32.328c tax. †17.631c tax.

This Sign will tell motorists you sell correct lubrication



THIS sign *always* identifies the station along-the-highway where a motorist can buy *the Oil* which will give him correct lubrication.

The motorist is learning that where he sees this sign he gets the *right grade* of motor oil to seal the power in his engine at every degree of wear.

Only Opaline Motor Oil is recommended on the basis of engine-wear—*as indicated by the mileage on the speedometer!* And only Opaline Dealers have this sound method for increasing gallonage.

Sinclair supplies the Dealer with several grades of Opaline, and with the Sinclair Recommendation Index which tells when each grade should be sold. The authorized Opaline Dealer asks the motorist his mileage, the Index tells the grade—the motorist drives away with the kind of lubrication which brings him back for more!

May we tell you about this successful method of selling *correct lubrication* with the full line of Opaline Motor Oils?

SINCLAIR REFINING COMPANY, INC.

Also Makers of Sinclair Gasoline and H-C Gasoline

45 NASSAU STREET, NEW YORK

Atlanta Boston Chicago Houston Kansas City

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Oil Securities Heavy During Week

Decline General. Overproduction Necessitates Much New Oil Financing for Construction of Storage

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Apr. 4.—Oil securities assumed a definitely downward course during the past week selling being heavy practically throughout the list. Some holders who had been encouraged by the relative stability of oil industry during the past few years are apparently taking to heart utterances of leading oil men pointing out the seriousness of the present overproduction and refuse to hold their stocks further.

New Oil Financing

New oil financing this year has been rather heavy, in line with statements by oil leaders that in view of the overproduction now existing considerably new money would have to be put into the construction of storage facilities.

One oil man states that if the price of Mid-Continent 36 gravity crude is reduced 25 cents a barrel more, it will force the shutting down of pumping wells now producing an average of 500,000 bbls. of oil a day.

Recent new financing by oil companies includes the following:

California Eastern Oil Corp., $12,500,000, consisting of $7,500,000 first mortgage 6½ per cent convertible bonds, offering of which will be made shortly, and $5,000,000 five-year 7 per cent debentures, which have been subscribed for by private investors. All this financing has been arranged through the First Securities Co., according to John E. Barber, president of the latter organization.

Humble Oil & Refining Co. 10-year debenture 5 per cent bonds, being offered at par by J. P. Morgan & Co. Sinking fund provisions call for payment of $2,500,000 annually to be used to purchase these bonds at price up to par. Should the bonds be unavailable under par, funds will be used to retire bonds of the $25,000,000 debenture 5½ per cent due in 1932. These two bond issues constitute the sole fixed debt of the company. The new bonds will be callable at 104 for the first five years and at 102 for the second five years.

Gulf Oil Corp., $35,000,000 5 per cent 20-year debentures.

Skelly Oil Co., $15,000,000 12-year 5½ per cent debentures.

Independent Oil & Gas Co., $6,500,000 of 12-year convertible 6 per cent debentures.

White Eagle Oil & Refining Co., $5,000,000 five-year 5½ per cent bonds with stock-purchase warrants.

Warner-Quinlan Co., $2,500,000 15-year convertible debentures.

Oil Well Supply

The Oil Well Supply Co. is understood to be planning to call its first mortgage 6 per cent serial bonds in a short time. This will leave the company free of funded debt. On December 31, 1925, there was $1,875,000 of this issue outstanding.

Pan American Western

The Pan American Western Petroleum Co. has passed the quarterly dividends of 50 cents a share on the A and B stock each time.

Edward L. Doheny, president of the company, said passing of the dividends was due to both to smaller net earnings in 1926 and the $2,000,000 back payment to the Government in connection with the Elk Hills decision.

Pan American Western organization and properties are among the most modern and up-to-date in the oil business. The company is selling considerable oil at present to the Pan American Petroleum & Transport Co., which is being shipped to the Atlantic Seaboard.

Lago Oil on Dividend Basis

The Lago Oil & Transport Co. declared an initial dividend of 75 cents a share, payable May 1 to stockholders of record April 11. The stock is understood to be on a $3 annual dividend basis.

Stockholders of the company have been asked to approve a proposal to increase the authorized stock from 4,000,000 to 5,500,000 shares, the additional stock to be used for acquisition of additional Venezuelan properties. It is expected the increase in stock is to take care of an offer to exchange one share of Lago for two of Creole Syndicate. Announcement to this effect is likely to be made within the next week or two.

Pan American-Creole Syndicate

F. H. Wickett, Chairman of the Board of the Pan American Petroleum & Transport Co., states that Pan American has acquired substantial stock interest in the Creole Syndicate.

"The development of the Lago Oil & Transport Co. in the past few months has been one of the most outstanding records of progress in the history of oil development in a foreign country," Mr. Wickett states. "In the last few weeks Lago has completed five additional wells totaling 27,000 bbls. initial production. In the last four years Lago has developed one of the greatest single oil reserves in the world and the unique record of having never drilled a dry hole. When additional tankers now being built have been delivered Lago will be able to transport from its Lake Maracaibo properties approximately 75,000 bbls. of oil a day and it's potential production is largely in excess of this figure.

"Creole Syndicate has made very great strides in a policy of expansion inaugurated with the entrance into the company last July of new banking interests, up to which time Creole operations were largely confined to the development of its maritime zones in Lake Maracaibo, adjoining the properties of Lago. These areas are operated jointly with the Gulf Oil Corp. of Venezuela, a subsidiary of the Gulf Oil Corp.

"Last September, Creole Syndicate acquired the Condor Oil Corp., controlling over 1,000,000 acres of selected lands in Venezuela, including over 500,000 acres in the District of Perija.

"Through its interest in Lago and Creole, Pan American has entrenched itself strongly in Venezuela. Venezuela has risen from a point in five years as an oil producing country, from several million barrels per annum to over 33,000,000 bbls. produced last year."

A well-known authority estimated Venezuela's output for 1927 at 60,000,000 bbls.

Cresent Pipe Line

The final accounting of the liquidation of Cresent Pipe Line Co. will probably be filed within four or five days and liquidating dividend will be paid the latter part of April. The distribution will be about $14.95 a share on the 60,000 shares of capital stock. Liquidation will start in July, 1925, when users of the line began obtaining oil from other sources.

Skelly Oil

The report of the Skelly Oil Co. and subsidiaries for the year ended December 31, 1926, shows net income of $5,691,346 after interest, Federal taxes, depreciation and depletion, etc., equivalent to $5.20 a share (par $25) earned on 1,093,669 shares of stock outstanding at the end of the year. This compares with $3,755,715 or $4.43 a share, on 846,240 average number of shares outstanding during 1925.

The consolidated income account of the Skelly Oil Co. for 1926 compares with 1925 as follows:

	1926	1925
Gross	$26,366,278	$23,007,516
Exp., taxes, etc.	15,511,008	13,525,607
Interest, etc.	628,319	943,045
Balance	$10,226,951	$8,538,864
Deprec., depl. etc.	4,491,559	4,617,324
Appl. to min. int.	134,046	165,825
Net income	$5,691,346	$3,755,715
Dividends	2,030,354	434,336
Surplus	$3,660,992	$3,321,379

The consolidated balance sheet of the Skelly Oil Co. and subsidiaries as of December 31, 1926, compares as follows:

Assets	1926	1925
Property, plant and equipment	$62,616,482	$53,516,757
Invest. in affil' cos.	662,172	597,896
Other investments	224	1,223
Advances	855,228	740,786
Empl. stock acct.	68,223	188,432
Special fund	65,362	50,596
Cash	1,640,714	1,467,515
Bills & accts. receiv.	1,540,654	1,628,622
Government bonds		1,350,000
Inventories	5,165,830	3,502,102
Deferred charges	249,380	394,848
Total	$72,864,269	$63,438,877
Liabilities		
Capital stock	*$27,341,740	$23,083,990
Funded debt	2,239,998	7,912,576
Minor. int. in subs.	252,488	197,928
Depr. & depl. reserve	26,802,939	23,555,236
Notes payable	4,173,964	826,713
Accounts payable	1,973,413	1,558,039
Int'st., etc., accrued	533,998	429,220
Unadjusted credit	26,609	17,046
Surplus	9,519,120	5,858,129
Total	$72,864,269	$63,438,877

*Par $25.

Standard Oil of Ohio

The balance sheet of the Standard Oil Co. of Ohio as of December 31, 1926, compares as follows:

Assets	1926	1925
Plant	$38,566,116	$37,835,801
Merchandise	6,631,219	7,236,809
Cash	191,627	422,239
Accounts receiv. etc.	9,494,850	7,951,741
Total	$54,883,812	$53,446,590
Liabilities		
Preferred stock	$ 7,000,000	$ 7,000,000
Common stock	14,900,000	14,000,000
Accounts payable	2,532,294	3,427,708
Deprec. account	9,372,412	8,307,837
Fed. tax reserve	1,051,967	1,101,335
Surplus	20,927,139	19,609,710
Total	$54,883,812	$53,446,590

Vacuum Oil

The report of the Vacuum Oil Co. for the year ended December 31. 1926, shows net profit of $24,133,655 after depreciation

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

Stocks—	Par	Clos. Quot. Apr. 4	Clos. Quot. Mar. 28	1927 High	1927 Low	1926 High	1926 Low	1925 High	1925 Low
Amerada Corp.	..	29	31⅜	37⅝	30⅝	32⅞	24¾	..	..
Atlantic Ref., com.	100	109	110½	117⅜	107	128⅜	97	117½	95½
Barnsdall "A"	25	28⅝	30½	35½	27	32½	23½	33½	18¾
California Pet., com.	25	26	27⅜	32⅜	26⅜	38⅛	30⅜	34⅜	23⅜
Houston Oil	100	102	103	124¾	60½	75	50½	85	59
Independent Oil & Gas	..	21⅜	23½	32⅜	23½	34	20¼	41⅜	13½
Louisiana Oil	10	12⅝	13½	18½	13½	19⅝	12	23⅜	13⅜
Maracaibo	..	16¼	17½	22⅜	16¼	27⅜	18⅜	35½	20⅜
Marland	..	45⅜	50	58¼	49⅜	63⅜	49¼	60¼	32⅜
Mid-Continent Pet.	..	32	34	39⅝	33⅞	41	25⅝	38	25⅜
National Supply	50	*89	88¼	95⅜	82½	84⅞	55½	71	54⅜
Oil Well Supply	25	*34	37	40⅜	31¼	36	30	38	33⅜
Pan. Amer., B	50	57⅜	64¼	65⅞	57½	72⅜	56½	83⅞	59½
Pan. Amer., Western B	..	21½	26⅞	37⅜	26⅞	46	34	94¾	37¼
Phillips Pet.	..	45⅞	50½	60¼	49⅛	54⅞	42½	47½	36¼
Producers & Refiners	50	*24	23¾	32	16⅜	26	11	32½	12½
Pure Oil, com.	..	27⅜	28⅜	32⅝	27¼	31	25⅜	33⅜	25½
Royal Dutch, N. Y., sh.	13.40	48⅞	50⅜	54½	50	57⅜	49⅜	57⅜	48¼
Shell Transport	10	*43	*45½	49	44½	48⅜	42	49	39¾
Shell Union, com.	..	27⅝	29	31¾	28	30⅝	24	28¾	21⅝
Simms Pet.	10	18	19	22¾	18⅞	28⅝	16½	28½	17¾
Sinclair Consolidated	..	17⅝	18	22⅜	17⅜	24⅞	16¾	24⅞	17
Skelly Oil	25	28⅜	30¾	37⅜	30¼	37	27	32½	21¾
Standard of California	25	54⅝	56½	60⅜	55½	63½	54	67¼	52½
Standard of New Jersey, com.	25	36	37⅜	41⅜	36	46⅜	37½	47½	38⅜
Standard of N. Y.	25	30¼	31¼	34½	31	47¼	30⅝	48⅝	40
Sun Oil Co.	..	31½	30½	34⅞	30	41⅝	30½	43⅞	38½
The Texas Company	25	47¼	48⅝	58	47⅝	58	48	55	42⅝
Tex. Pac. Coal & Oil	10	13	13⅝	16⅜	13	19½	12⅛	23⅜	11
Tide Water Oil	25	*24½	25	29⅛	27	39¼	27	..	..
Transcontinental	..	4	4½	5	4⅛	5½	3	5⅝	3½
Union Oil of Calif.	25	42	44⅜	56½	42⅛	58⅜	37¼	43⅝	33⅛
Union Tank, com.	100	*99	*100	102	95	120⅜	81¼	‡134	118
White Eagle O. & R.	..	24¼	25⅛	27½	25⅛	29⅜	25⅛	21⅜	25⅝
Standard Oils									
Anglo-Amer. Oil	£1	*18⅝	19¼	21⅝	18⅜	19⅜	16½	26⅜	17⅛
Borne Scrymser	25	*53	*53¾	69	53⅜	75	65	‡240	205
Buckeye Pipe Line	50	*48	50	48½	45	59½	47⅝	72	63½
Chesebrough Mfg. Co.	25	*79	*78	82	76½	81⅛	63	74	48¼
Continental	10	19	19⅜	22⅝	19⅜	25⅞	19¼	31½	21⅞
Cumberland Pipe Line	100	*91	93	137	106	137	102	156	128
Eureka Pipe Line	100	*51	*50	51¼	47	53⅜	43	96	61¼
Galena Signal, com.	100	*10	*10¼	13½	10¼	32½	9⅞	68½	23½
Humble O. & R. Co.	25	57⅜	59¼	62⅝	54	68⅛	52	99	42¼
Illinois Pipe Line	100	137	137	140½	123⅜	144	131	154½	124
Imperial Oil	..	44⅛	45¼	46	37⅜	39⅜	32½	39¼	27¼
Ind. Pipe Line	50	*66½	*66½	69½	61	68	52¼	84	87½
International Pet. Co.	10	30½	32	34⅞	30½	35¼	28⅜	25⅜	22⅛
National Transit Co.	12.50	14½	14⅝	14	13⅜	20⅝	27⅛	25½	16½
New York Transit	100	*31½	*32	36	31¼	51½	27¾	79	50
Northern Pipe Line	100	*75½	*76	79¼	70	80½	64	88	67½
Ohio Oil Co.	25	56⅜	58⅜	64⅜	57½	67⅜	55⅜	75¼	60
Penn-Mex Fuel	25	*15	*16½	19	16⅜	24¼	15	44	19
Prairie Oil & Gas	25	47½	49	55½	48¼	60¼	48	65½	45⅞
Prairie Pipe Line	100	*147	148½	151	132	137½	122½	129⅜	105
Solar Refining Co.	100	*182	185	201½	185	212	184½	259	200
So. Penn Oil	25	*37	36⅝	41½	35½	50	35	‡197	139
S. W. Pa. Line	100	*61⅛	*61	62½	55½	56	47½	84	50
Southern Pipe Line	50	*18	19½	27¼	15½	27	24	‡103	63
Standard of Indiana	25	66⅛	67⅝	74¼	66½	10½	61⅝	70⅝	69½
Standard of Kansas	25	*17	18⅝	20⅞	15⅝	36½	16½	46	30¼
Standard of Kentucky	25	*113	114⅞	122¼	114⅛	134⅝	108	137	114⅜
Standard of Nebraska	25	*46	46½	49½	46⅛	51⅛	42	‡270	231
Standard of Ohio, com.	100	*73	76½	254	335	362	192½	369	338
Swan & Finch, com.	25	*16	*16	16	15	21	18	27	12
Vacuum Oil	25	104¼	107⅝	110½	95¼	109⅝	94½	109½	80½
Miscellaneous									
Gulf Oil Corp. of Pa.	25	89¼	*93	96½	92⅛	95	82½	98¼	63½
Tidewater Associated	..	*18	19	23½	17½	27	21	..	..

*Bid, no sales. ‡Old stock. †New stock.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Apr. 4	56.63	Feb. 26	60.83	Jan. 24	59.89
Mar. 28	58.51	Feb. 21	60.26	Jan. 17	60.38
Mar. 21	58.03	Feb. 14	61.13	Jan. 10	59.42
Mar. 14	59.26	Feb. 7	60.51	Jan. 3	58.94
Mar. 7	59.34	Jan. 31	60.09	Dec. 27	60.22

tion and reserve for Federal taxes, equivalent to $9.65 a share (par $25) earned on 2,498,832 shares of stock. This compares with $24,230,091 or $9.73 a share on 2,487,998 shares in 1925.

The income account for 1926 compares with 1925 as follows:

	1926	1925
Gross profit	$28,366,037	$27,414,540
Deprec. reserve, etc.	3,102,382	1,434,449
Taxes	*1,130,000	1,750,000
Net profit	$24,133,655	$24,230,091
Dividends	12,478,583	12,424,615
Surplus	$11,655,072	$11,805,476

The balance sheet of the Vacuum Oil Co. as of December 31, 1926, compares as follows:

Assets	1926	1925
†Plants, etc.	$22,942,989	$21,344,839
Stock in for. cost	20,629,871	20,048,973
Other investments	816,650	67,896
Merchandise & mats.	36,178,537	32,688,322
Accts. receivable	39,341,676	27,119,925
Cash & securities	21,858,105	41,960,999
Deferred charges	652,238	1,261,462
Total	$141,520,066	$144,492,416
Liabilities		
‡Capital stock	$62,470,800	$62,199,950
Bonds		14,800,000
Accts. payable, etc.	5,736,868	5,420,135
Insur. reserve	2,500,000	2,500,000
Fed. tax reserve	2,112,514	3,557,519
Surplus	68,699,884	55,914,812
Total	$141,520,066	$144,492,416

*Company states 1926 Federal taxes will be paid out of tax reserves as excess over prior years requirements is sufficient for this purpose.
†After depreciation.
‡Par value $25.

Trinidad Oil Fields

Percy A. Rockefeller, George M. Moffett, Clifford M. Leonard of Chicago, R. B. Kahle and C. M. Bennett were added to the directorate of Trinidad Oil Fields, Inc., at a special meeting of the board. Mr. Moffett is vice president of Corn Products Refining Co., and a director of Commercial Solvents Corp. Mr. Leonard is chairman of the board of Beacon Oil Co., of which Mr. Kahle is president.

Mr. Leonard was elected chairman of the board.

SPENT LARGE SUM IN BOGGY CREEK POOL

(Continued from Page 31)

around 2,455 feet. The location is about 10 miles west of the Humble company's well at Carey Lake or Boggy Creek. Speculators are paying $250 an acre for royalty interests around the Jarvis test. The Humble company is rigging north of its flowing well, now shut in for tankage.

Something like 500 leases and royalty purchases have been filed at Palestine court house since the Humble company's well came in and the amount of money that is involved is estimated as high as $200,000. The highest royalty rate listed is at the rate of $250 per acre.

A series of shallow tests will be drilled by the Humble Oil & Refining Co. with four light rotary outfits in an effort to outline the Boggy Creek Dome.

The Humble Oil & Refining Co. is drilling No. 1 Southern Pine, 16 miles southwest of the discovery well, but in Anderson County, at 2,356 feet. It bailed salt water at 1,700 feet.

The discovery has naturally revived interest in that section and many old tests are resuming drilling. In Crockett County, the Porter Oil Co. is drilling around 2,565 feet. Two locations have been made north of Lovelady, on the I. & G. N. branch of the Missouri Pacific Railroad.

High Cost of Prospecting

It is estimated here that the Humble Oil & Refining Co. spent close to $300,000 before it located oil in Cherokee County.

The Humble company owns about 35,000 acres around the well. The Rio Bravo Oil Co. has an interest in 750 acres and M. A. Davey owns a one-twenty-fourth overriding royalty in 8,000 acres of the block. The big leasehold is said to have cost the Humble Oil & Refining Co. about $40,000, counting all the items entering into the leasing of the property and the payment of about $1 per acre for the leases. It made 13 core tests with light rotary rigs, and is said to have made 13,539 feet of hole in obtaining cores, at an expense of $67,695. It drilled three wells which are said to have cost the company $150,000. The company maintained two men in the field for a year and used a part of its Corsicana Field clerical and geological force in working the Cherokee territory and this is said to have set the company back about $30,000. The use of a seismograph for a month, together with the employment of a seismograph crew of nearly a dozen experienced men cost it another $5,000. Summed up this is what the company paid out before it hit the pay.

For acreage	$ 40,000
For drilling	217,695
Use of seismograph	5,000
Field and clerical work	30,000
Total	$292,695

The above figures are not given as official. They represent estimates of oil men here who made them up to show the high cost it is sometimes necessary to meet in the search for oil. That the Humble will get it all back in a hurry from its Boggy Creek acreage is believed to be a matter of course.

The test of Nicolle and wife, on the Hill farm, Dusk Survey, Cherokee County, was still shut down at 2,620 feet with a core barrel in the hole when last visited. The Magnolia Petroleum Co.'s No. 1 Summer, Brewer Survey, was drilling in lime at 4,235 feet.

CALIFORNIA DRILLING RECORDS ARE BROKEN

(Continued from Page 33)

tos Heights, and causes the townlot extension to occur at that locality.

With reference to the relative importance of the field at Seal Beach, it may be stated that the eight oil fields located along, and caused by, the Newport-Beverly fault zone, fall into three general classes with reference to their magnitude. Long Beach and Huntington Beach are fields of the first importance; Dominguez Inglewood, Rosecrans, and probably Seal Beach of the second; and Beverly Hill and Newport of the third. More strictly speaking, Seal Beach is perhaps midway between the first and second classes.

A series of oil zones totaling 1,000 or more feet in thickness is possible at and near the top of the Seal Beach anticline, this series thinning to 20 feet or less upon the edges of the structure. The entire field may have a total ultimate production of oil in excess of 100,000,000 barrels. Indications point to this figure being a minimum.

Summary and Conclusions

Providing no restrictive measures are taken, it appears at present that Seal Beach production will reach a peak in the neighborhood of 80,000 barrels in June or July, and will thereafter decline. As this is the only field now sustaining the production of California at a high figure, the yield of the state will probably decline during the latter part of 1927.

The Alamitos Heights extension of Seal Beach is perhaps overrated in popular opinion, for, while an appreciable flush production of 30,000 or more barrels may occur in this extension, only a part of the wells now drilling are indicated to be located on favorable structure, and these may decline with great rapidity. In this connection it may be stated that unless sands considerably thicker than those so far encountered are found, the close spacing, together with the number of wells apparently located off-structure, may cause Alamitos Heights to be the scene of one of the most financially disastrous drilling campaigns in the history of California.

With regards to overproduction in California, the writer has had no cause to change his opinion published last December[3], that "California production will maintain, on the whole, almost its present level (166,000 barrels in December 1926) during 1927. A slight downward curve may occur during the later portion of the period should no new fields be discovered". This estimate is still believed to be a fair average for the year 1927, for, fluctuations will doubtless occur, the production of the state will probably not vary materially.

The California situation is at this time unsettled owing to overproduction in the Mid-Continent, which, at current tonnage rates, does not allow California to dispose of its increased surplus of gasoline at a fair profit. From a strictly local standpoint overproduction has not yet occurred, but only normal increase; in fact stocks of refinable crude have been drawn upon. It is overproduction in the Mid-Continent region which the oil industry has chiefly to fear. California, by comparison, is at present an orderly and dependable unit.

[3]"Future Oil Production of California." The Oil and Gas Journal of December 30, 1926. pp. 40, 169, 172.

SPECIFICATION TESTS FOR SPECIAL NAPHTHAS

(Continued from Page 156)

Residue.

4. The amount of residue remaining after evaporating 50 cc. of the material in a flat-bottomed dish, about 4 inches (approximately 10 cm.) in diameter by 1 inch deep (approximately 2.5 cm.), on a bath of boiling water for a period of four hours shall not exceed 0.2 per cent by weight and shall be wholly organic.

Neutrality Test.

5. When 50 cc. of the material are shaken with 10 cc. of distilled water, the water layer shall remain neutral to methyl orange.

Freedom from Objectionable Sulphur Compounds.

6. The material shall be free from objectionable sulphur compounds as indicated by absence of change in the color of freshly cleaned copper strips kept in the distillation flask during the distillation carried out as specified in Clause 2.

Volatility.

7. The volatility of the material shall be similar to that of turpentine when determined in the manner described in Appendix B.

Flash Point.

8. The flash point of the material (Abel's close test) shall not be less than 78 degrees Fahrenheit. 25.6 degrees Centigrade.

Sampling and Size of Sample.

9. A representative sample of the material taken from the bulk and measuring not less than one Imperial pint (568 cc.) is necessary for the purpose of examination under this specification. The sample shall be packed in a clean, dry and air-tight metal or glass container of such a size that it is nearly filled by the sample.

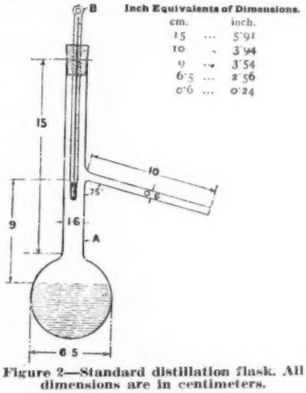


Figure 2—Standard distillation flask. All dimensions are in centimeters.

Appendix A.
Method of Distillation.
Description.

The apparatus to be used is shown in Figure 1 and 2 and consists of the following parts:—

(a) A distillation flask A, of the dimensions shown in Figure 2, fitted with a thermometer B, graduated in single degrees and preferably of such a length that the column of mercury in the stem is completely surrounded by the vapor of the boiling liquid.

(b) A cylindrical metal draught screen D, divided by a diaphragm C of soft asbestos millboard, 6 mm. (0.24 in.) thick. The diaphragm has a circular hole 5 cm. (1.97 in.) diameter in the center and the support of the asbestos diaphragm is such that the diameter of its hole is greater than that in the diaphragm itself. The lower portion of the screen is provided with draught holes and with mica windows through which the flame can be observed. The upper portion of the screen is provided with two slits, one to admit the side tube of the flask and the other to permit of the thermometer being observed.

Note.—The top of the draught screen is to be left open.

(c) A Bunsen Burner E, provided with an adjustable gas tap.

(d) A glass condenser F of the dimensions shown: the outlet of the condenser is either bent or provided with an adapter.

(e) A receiver G consisting of a suitably graduated measuring cylinder.

(f) A pendulum H may be provided and is of use for measuring the rate of distillation.

Method of Using Apparatus.

(a) 100 c. c. of the turpentine to be tested shall be put into the flask together with a few small pieces of clean porous pot.

(b) The thermometer and cork shall be introduced into the flask so that the bulb of the thermometer is just below the exit tube of the flask. The flask shall be pressed on to the abestos diaphragm and the condenser and shield affixed as shown in the diagram.

(c) The burner shall be lighted and the flame so regulated that the turpentine distills at a rate of 3 to 4 cc. per minute. The distance between the burner and the bottom of the flask shall be so adjusted that a flame of minimum size only is necessary.

Thermometer Corrections.

(a) Emergent Thread. If the mercury thread is not completely surrounded by the vapor, a correction for the emergent column must be applied to the thermometer reading. The number of degrees Centigrade (dt) to be added to the observed thermometer reading t degrees Centigrade shall be calculated from the following formula:

$$dt = 0.000143\ (t - t^1)\ N,$$

where N is the number of degree divisions of thread exposed above the cork, and t^1 the air temperature half-way up the exposed thread.

(b) Barmoteric Pressure. The correction to be applied to the observed temperatures on account of the deviation of barometric pressures from the normal (760 mm.) shall be calculated as follows:

0.5 degrees Centigrade shall be subtracted for every 10 mm. above 760 mm.

0.5 degrees Centigrade shall be added for every 10 mm. below 760 mm.

Appendix B.
Method for the Determination of Volatility.

One grm. of the white spirit shall be weighed into a watch glass or flat-bottomed glass dish, about 3 in. (approx. 76 mm.) in diameter and left exposed to the air of a room, free from draughts, at a temperature of from 60 degrees to 65 degrees Fahrenheit. (15.6 degrees to 18.3 degrees Centigrade). The loss in weight shall be determined at intervals and shall follow closely that of genuine turpentine treated similarly and at the same time.

At the end of 24 hours the residue remaining from white spirit shall not exceed 0.5 per cent.

BARNICKEL ESTATE JUDGMENT AFFIRMED

By Charles E. Kern

WASHINGTON, D. C., Apr. 2.—The decree of the district court of Wyoming in the case of the Producers & Refiners Corp., appellant, vs. Sears, and John B. Lahmann, executors under the will of William S. Barnickel, deceased, has been affirmed by the Circuit Court of Appeals, eighth circuit, and the judgment has been affirmed with modifications on the accounting for profit in favor of the administrators of the deceased patentee.

WILDCAT OPERATIONS IN PANHANDLE

(Continued from Page 40)

McMan O. & G. Co.'s No. 2 F. E. Percival, NW cor. W ½ NE Sec. 199, Blk. 3 ..... Shut down 2,603 ft.
Navajo Oil Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y..... Drilling 1,900 ft. broken lime.
Republic Prod. Co.'s No. 1 Burnett, Sec. 116, Blk. 4 ..... Topped pay lime 3,109 ft.; 600 ft. oil in hole; shut down 3,115 ft.
Roxana Pet. Corp.'s No. 1 Brown, Sec. 106, Blk. 4..... Drilling 2,416 ft.
Roxana Pet. Corp.'s No. 2 Brown, SE cor. Sec. 106, Blk. 4 ..... Drilling 2,512 ft.
Skelly Oil Co.'s No. 1 H. Schafer, SW cor. N ½ Sec. 198, Blk. 3 ..... Drilling 2,600 ft.
Skelly Oil Co.'s No. 2 H. Schafer, NW cor. NE Sec. 87, Blk. 4 ..... Drilling 2,312 ft.
Skelly Oil Co.'s No. 3 H. Schafer, NW cor. NE Sec. 86, Blk. 4 ..... Drilling 2,140 ft.
Skelly Oil Co.'s No. 4 H. Schafer, NW cor. Sec. 86, Blk. 4.. Drilling 2,230 ft.
Stubblefield et al's No. 1 E. Cooper, SW cor. NE Sec. 5, Blk. 9, I. & G. N. Sur. ..... Rig.
The Texas Company's No. 1 C. A. Noel, Sec. 26, Blk. 4.... Drilling 2,725 ft.
The Texas Company's No. 1 J. L. Noel, Sec. 187, Blk. 3... Pulling 6-in. to straightream to 3,157 ft.; 10,000,000 ft. of gas at 3,095 ft.
Vitek Oil Co.'s No. 1 J. H. Eller, NE cor. NW Sec. 200, Blk. 3 ..... Rig.
Vitek Oil Co.'s No. 1 C. R. Garner, SW cor. Sec. 113, Blk. 4, I. & G. N. Sur. ..... Drilling 260 ft.
White Deer Oil Co.'s No. 2 Jordan-Brown, Sec. 104, Blk. 4.. Drilling lime 2,285 ft.

CHILDRESS COUNTY

Brookins et al's No. 1 Mrs. Givens, 600 feet N and W of SE cor. Sec. 676, W. & M. W. Sur. ..... Spudded and shut down.
C. L. Sloane et al's No. 1 B. P. Smith, Sur. 49, F. P. Knott lands ..... Fishing 1,300 ft.

COLLINGSWORTH COUNTY

Duke & Langford's No. 1 Martha Johnson, Sec. 97, Blk. 22.. Drilling 2,616 ft.; some water showing.
Harmon & Deems' No. 1 Wilson (Scott), Sec. 44, Blk. 21.. Location.
Wischkamper's No. 1 fee, C SE Sec. 93, Blk. 16..... Drilling 2,138 ft.

DALLAM COUNTY

James et al's No. 1 fee, Sec. 9, Blk. 47½..... Fishing 2,870 ft.
Harry Skelly et al's No. 1 Capitol Synd., Sec. 19, Blk. 17.. Shut down 2,080 ft.
Marland Oil Co. et al's No. 1 Capitol Syndicate, Sec. 36, Blk. 18, Capitol Syndicate land ..... Shut down 950 ft.

DEAF SMITH COUNTY

Julian & DeGrace's No. 1 Mrs. R. A. Hindley, Sec. 47, Blk. K-8 ..... Drilling sand 410 ft.
Red Hill Oil Corp.'s No. 1 Barrett, Sec. 93, Blk. K-4..... Shut down 700 ft.

DONLEY COUNTY

A. T. Drilling Co.'s No. 1 F. E. Harrington, Sec. 39, Blk. 3-C ..... Total depth 3,170 ft. in lime; reaming to set 6-in.; 1,200 water from 3,115-22; show gas 3,140-60 ft.

GRAY COUNTY

Archer, Blake et al's No. 1 Turneau, Sec. 111, Blk. 2-B.. Spudded and shut down.
Amos et al's No. 1 Crews, NW cor. Sec. 9, Blk. 25..... Spudding.
Bay Shore Oil Co.'s No. 1 C. W. Bradford, Sec. 143, Blk. 2-B ..... Total depth 2,666 ft.; gas shut in and work suspended.
Blackwell & McGee's No. 1 Bowers, Sec. 92, Blk. 2-B..... Making 45,000,000 ft. gas 2,770 to 2,835 ft.; small show oil 2,715 ft.; total depth 2,950 ft.; running 6-in. pipe.
British-Amer. O. Co.'s No. 1 J. E. Meers, Sec. 107, Blk. 3.. 58,000,000 ft. gas and slight spray oil; fishing bit 3,190 ft.
British American Oil Co.'s No. 1 J. M. Patton, Sec. 61, Blk. B-2 ..... Rigging up.
Cole O. & G. Co.'s (was Magdalene Oil Co.'s) No. 1 J. E. Williams, Sec. 17, Blk. 1 ..... Fishing 2,400 ft.
Jack Doyle's No. 1 D. W. Osborne, SE cor. Sec. 109, Blk. 3 ..... Rig.
Empire G. & F. Co.'s No. 1 W. C. Archer, SW cor. NE Sec. 174, Blk. 3 ..... 12-in. 954 ft.; drilling 2,130 ft.
Empire G. & F. Co.'s No. 1 B. Hughey, Sec. 129, Blk. 3... Set 6-in. 3,024 ft.; rainbow show oil 3,063 ft., 35,000,000 ft. gas; 1,100 ft. oil and 1,500,000 ft. gas granite wash 3,120-25 ft.; total depth 3,160 ft.; spraying 20 bbls.; cleaning out 3,194 ft.
Empire G. & F. Co.'s No. 1 J. F. Meers, NE cor. SE Sec. 107, Blk 3 ..... Drilling 1,201 ft.
Empire G. & F. Co.'s No. 1 J. J. Wall, Sec. 161, Blk. 3.... Total depth 2,930 ft.; shut down; 43,000,000 ft. gas; closed in.
Empire G. & F. Co.'s No. 1 Webb, SW cor. Sec. 59, Blk. 25 ..... Run 8-in. to 2,400 ft.; drilling plug.
Foster et al's No. 1 G. Cutebank, SW cor. NE Sec. 65, Blk. 25 ..... Drilling 250 ft.
Gray County Pet. Co.'s No. 1 Herndon, Sec. 147, Blk. 3... Shut down 2,405 ft.
Gulf Production Co.'s No. 1 J. M. Saunders, Sec. 40, Blk. 3 ..... 600 ft. oil in hole; est. 15,000,000 ft. gas; top pay 2,955 ft.; total depth 3,008 ft.
Humble O. & R. Co.'s No. 1 T. B. Haggard, SW cor. Sec. 112, Blk. 3 ..... Total depth 2,300 ft.; underreaming.
Johnson & Martin's No. 1 Fanny Holloway, Sec. 7, Blk. H. A. W. Wallace Sur. ..... Rig on ground.
John C. Lane's No. 1 A. Chapman, Sec. 19, Blk. 1, A. C. & H. B. Sur. ..... Underreaming to 3,270 ft.
Magnolia Pet. Co.'s No. 1 fee, Sec. 11, Blk. 3..... 1,800 ft. oil in sandy lime 2,955-87 ft.; shot 120 quarts; total depth 3,004 ft.
Neudigate et al's No. 1 A. Chapman, NE cor. E ½ SE Sec. 52, Blk. 25 ..... Rigging up.
Pampa Oil Co.'s No. 1 W. R. Campbell, Sec. 90, Blk. 3.... Shut down 120 ft.
Pampa Pet. Co.'s No. 1 Mary Leopold, Sec. 141, Blk. 3.... Drilling 3,450 ft.; 600 ft. SW in in hole from 3,320-60 ft.
Purple Sage Oil Co.'s No. 1 Johnson, Sec. 8, Rockwall County school land ..... Shut down 1,610 ft. for 10-in.
Riley & Heck's No. 1 Mrs. Hopkins, Sec. 66, Blk. 2-B.... Shut down 2,900 ft.; rig burned.
Ruby Oil Co.'s (was Weir, Kribs & Finklea's) No. 1 B. F. Talley, Sec. 114, Blk. 2-M..... Shut down 635 ft.
Salisbury & Reynolds' No. 1 M. Huselby, C SE NE NE Sec. 55, Blk. 25, H. & G. N. ..... Location.
C. B. Shafer's No. 1 G. Cole, SE cor. W ½ SW Sec. 105, Blk. 3 ..... Drilling 900 ft.
The Texas Company's No. 1 H. M. Barrett, Sec. 131, Blk. 3 ..... 30,000,000 ft. gas 2,615-50 ft.; drilling ahead.
The Texas Company's No. 1 J. B. Barrett, NE cor. NW NW Sec. 130, Blk. 3 ..... Spudding.
The Texas Company's No. 1 Osborne, Sec. 108, Blk. 3.... Drilling 2,805 ft.; 9,000,000 ft. of gas.
The Texas Company's No. 3 Saunders, C E ½ Sec. 3, B & B Sur. ..... 11,000,000 ft. gas 2,395-2,415 ft.; increased to 20,000,000 ft. gas at 2,465 ft.; drilling 2,590 ft.
Travis et al's No. 1 J. Back, Sec. 44, Blk. 25 ..... Shot with 90 quarts at 2,650-70 ft.; total depth 2,674 ft.; making one-half bailer oil per hour.
J. Williams et al's No. 1 C. W. Bradford, Sec. 122, Blk. B-2 ..... Rig blown down.

HANSFORD COUNTY

Caldwell et al's No. 1 J. Adriance, Sec. 21, Blk. 2, G. H. & H. Sur. ..... Shut down 585 ft.
Oklavania Oil Co.'s No. 1 Whitson, Sec. 2..... Drilling 3,250 ft.

HARTLEY COUNTY

Amerada Pet. Corp.'s No. 1 Frances Farwell, Sec. 27, Blk. 1? ..... Underreaming 3,080 ft.
Deep Rock Oil Co.'s No. 1 Lyman & Balfour, Sec. 9, Blk. 2 ..... Shut down, 1,710 ft.
Eslick et al's No. 1 J. B. Irving, Sec. 13, Blk. 13..... Drilling 2,400 ft.
W. W. Holmes' No. 1 G. B. Coots, Sec. 57, Blk. XR..... To plug and abandon 2,990 ft.; top of granite 2,955 ft.
J. E. McKanna's No. 1 E. S. Collins, Sec. 3, Blk. LS..... Shut down 3,295 ft.
J. E. McKanna's No. 1 Frances Farwell, Sec. 30, Blk. 22.. Shut down 1,030 ft.
J. E. McKanna's No. 1 J. M. Shelton estate, Sec. 29, Blk. 202 ..... Shut down 3,502 ft.; contract depth.
Kork Oil Co.'s No. 1 J. M. Shelton estate, Sec. 1, Blk. 8-B ..... Spudded and shut down.

HEMPHILL COUNTY

A. J. Calhoun's No. 1 J. C. Isaacs, Sec. 189, Blk. C..... Spudded and shut down.
Hoover et al's No. 1 Schaller estate, Sec. 4..... Spudded and shut down.
Hoover et al's No. 1 fee, J. S. Hood Sur. ..... Small show oil and gas 4,027 ft.; hole full water in sandy lime 4,005-10 ft.; shut down 4,280 ft.

HUTCHINSON COUNTY

Amarillo Oil Co.'s No. 1 Ida Ingerton, 3,280 feet from NL and 330 feet from EL Sec. 41, Blk. 47..... Drilling 615 ft.
Anderson & Pritchard's No. 1 Yake, Sec. 1, Blk. J..... Total depth 3,005 ft.; plugging back to shoot.
Dominion Oil Co.'s No. 1 C. H. Jasper, Sec. 23, Blk. M-23, T. C. R. R. Sur. ..... Show of oil 3,033-35 and 1,000,000 ft. of gas 3,015 ft; total depth 3,035 ft.; shut down; 1,500 ft. oil in hole; top lime 2,320 ft. (corrected).
Marland Oil Co.s (Leo Flowers) No. 1 Carver, Wm. Heath Sur. ..... Set 6-in. at 3,250 ft.; 10,000,000 ft. gas 2,920-3,255 ft.
Pole Cat Oil Co.s No. 1 W. B. Hale, Sec. 24, Blk. M-21.. Rig.
Panfield Oil Co.'s No. 1 Luginbyhl Brothers, Sec. 50, Blk. M-23 ..... Drilling 1,250 ft.
Phillips Pet. Co.'s No. 1 Yake, Sec. 36, Blk. 46..... Cement. 550 ft.
Pool & Golding's No. 1 Mrs. R. A. Jameson, Antonio Dubois Sur. ..... Drilling 1,000 ft.
Prairie, Shamrock & Hagy's No. 1 Yake, Sec. 35, Blk. 47.. Total depth 3,287 ft.; plugging back to shoot.
Prairie Oil & Gas Co.'s No. 1 J. M. Sanford, SW cor. N ½ S ½ N½ Sec. 85, Blk. 46 ..... Rig on ground.
Prairie O. & G. Co. and Vacuum Oil Co.'s No. 1 Cal Merchant ..... Rig on ground
Vitek Oil Co.'s (was Get Oil Co.'s) No. 1 W. F. Allen.... Spudded and shut down.

LIPSCOMB COUNTY

Everett et al's No. 1 Mrs. H. D. May, Sec. 612, Blk. 43.... Shut down 960 ft.
McCorkle's No. 1 A. Barton ..... Fishing 3,760 ft.
Smith, Kinsley & Ruby's No. 1 C. W. Jones, NE cor. SW Sec. 100, Blk. 43 ..... Drilling 810 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 1 Masterson-J. Sec. 59, Blk. O-13.. Shut down 3,126 ft.
Amarillo Oil Co.'s No. 2 Terry Thompson, Sec. 19, Blk. 44.. Drilling 3,100 ft.
Douglas Oil Co.'s No. 1 H. M. Beauchamp, Sec. 112, Blk. 44 ..... Pulled rig in 1,905 ft.
Marland Oil Co.'s No. 1 J. T. Sneed, Jr., Sec. 25, Blk. 1... Total depth 3,073 ft.; 6-in. cemented 3,012 ft.
Humble O. & R. Co.'s No. 1 Kilgore, Sec. 28, Blk. 44..... Drilling black shale 3,715 ft.
Morton & Co.'s No. 1-H Rubert, Sec. 191, Blk. 2-T..... Lime 2,805-55 ft.; 45,000,000 ft. gas.
Phillips Pet. Co.'s No. 2 Special Sneed..... Drilling 1,310 ft.
Prairie O. & G. Co.'s No. 2 Sneed, Sec. 26, Blk. 6-T..... Total depth 4,300 ft.; will plug back and complete as gasser; pulling big pipe.
Moore County Oil Co.'s No. 1 Sneed, Sec. 30, Blk. 6-T.... Fishing 1,970 ft.
Shadler Brothers' No. 1 John Lowery, Sec. 237, Blk. 44... Drilling 1,425 ft.
Prairie and Shamrock's No. 1 Gober, Sec. 16, Blk. M-21.. Total depth 1,120 ft; to skid rig.

OCHILTREE COUNTY

W. G. Burton's No. 1 Stickler, Sec. 579, Blk. 43..... Shut down 3,740 ft.
Hamilton et al's No. 1 R. E. Wamble, Sec. 144, Blk. 43.... Shut down 250 ft.
McCorkle Pipe Line Co.'s No. 1 R. H. Moore, Sec. 471, Blk. 43 ..... Shut down 1,600 ft.
McCorkle's No. 1 Weinett, Sec. 674, Blk. 43 ..... Rig.
Standard Dev. Co.'s No. 1 Bowden, Sec. 823, Blk. 43..... Shut down 900 ft.

OLDHAM COUNTY

Prairie O. & G. Co.'s No. 1 Landergin, SE cor. NE SW Sec. 46, League 310, Capital land ..... Drilling 2,452 ft.

POTTER COUNTY

Greater Amarillo Pet. Co.'s No. 1 Townsite, Sec. 167, Blk. 2, A. B. & M. Sur. ..... Shut down 2,020 ft.
Farmer O. & G. Co.'s No. 1 J. A. Jones, Sec. 3, Blk. 1.... Shut down 200 ft.
Kelmey Oil Co.'s No. 1 W. H. Bush, Sec. 19, Blk. 9..... Rig.

RANDALL COUNTY

Patterson et al's No. 1 Campbell & McIlroy, NE cor. Sec. 60, Blk. K-14, T. T. R. R. Sur ..... Spudded and shut down.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Mrs. H. Ledrick & Sons, Sec. 7, Blk. 5-A ..... Drilling 4,910 ft.
Mercer & Dunbar's No. 1 H. A. Gill, Sec. 127, Blk. M-2... Cellar.
Murphy et al's No. 1 Gill, Sec. 31, Blk. M-2 ..... Shut down 650 ft.
Charles Page et al's No. 1 Hamilton, Tract 2, Clay County school land ..... Shut down 440 ft.
Pan-State Oil Co.'s No. 1 A. H. Tandy, Sec. 179, Blk. 42.. Rigging up.
Pettijohn et al's No. 1 J. A. Meade, Sec. 29, Blk. 1-B..... Skidded rig 20 ft. west and shut down.
Trammel et al's No. 1 A. H. Tandy, School Land Sur..... Spudded and shut down.

SHERMAN COUNTY

Gibson Oil Co.'s No. 1 Bivins, Sec. 35, Blk. 3-B..... Fishing 1,140 ft.
Hagy & Harrington's No. 1 S. F. Flores, C SW Sec. 64, Blk. 2-T, T. & N. O. Sur. ..... Location.
Phillips Pet. Co.'s No. 1 Price & Fuqua, C NE Sec. 33, Blk. 2-B, G. H. & H. Sur. ..... Location.
Whitehead et al's No. 1 Lee Bivins, C SW Sec. 36, Blk. 2, G. H. & H. Sur. ..... Location.

SWISHER COUNTY

R. H. Miller's No. 1 Todd ..... Location.

WHEELER COUNTY

American Ref. Co.'s No. 1 E. E. Carlton, Sec. 29, Blk. 13 Shut down 2,029 ft.; 3,000,000 ft. gas, show of oil, 2,027 ft.
Angus et al's No. 1 G. A. Morgan, SW cor. SW NE Sec. 93, Blk. 17 ..... Spudding.
Boyles & Johnson's No. 1 S. L. Lewis, Sec. 40, Blk. 24... Fishing for bit 2,400 ft.
Continental Oil Co.'s No. 2 H. Jackson, SE cor. NE Sec. 11, Blk. 27 ..... Drilling 2,310 ft., showing oil and making 3,000,000 ft. gas; underreaming 6-in. to 2,365 ft.
Foster et al's No. 1 S. H. McDonald, SE cor. NW SW, J. N. Lindsay Sur. ..... Spudded and shut down.
Lone Star Gas Co.'s No. 1 C. A. Linkey, C NW SE Sec. 129, Blk. 23 ..... Building rig.
Lone Star Gas Co.'s No. 1 R. S. Alexander, NE NW Sec. 11, Blk. 27 ..... Location.
Magnolia Pet. Co.'s No. 1 Laycock, Sec. 9, Blk. 27..... Drilling 2,180 ft.; making 3,000,000 ft. gas 2,070 ft.
Magnolia Pet. Co.'s No. 1 J. A. Worley, NE cor. Sec. 39, Sec. 42, Blk. 24 ..... Drilling 1,670 ft.
Marland Oil Co.'s No. 2 W. E. Bentley..... Drilling 1,330 ft.
Murchison & Fain's No. 1 Close, Sec. 77, Blk. 23 ..... 10,000,000 ft. gas 1,585-1,610 ft.; shut down.
North Texas Oil Co.'s No. 1 J. H. Jackson, NE NW Sec. 11, Blk. 27 ..... Spudding.
J. J. Rook's No. 1 M. Mertel, SE NE Sec. 4, Blk. 24, H. & G. N. Sur. ..... Location.
J. J. Rock Co.'s No. 1 T. C. Jones, Sec. 1, Blk. 34 ..... Fishing casing 1,300 ft.
J. J. Rook's No. 1 C. W. Porter, SW cor. NW Sec. 41, Blk. 24 ..... Drilling 860 ft.
Wheeler O. & G. Co.'s No. 1 P. J. Sorenson, Sec. 53, Blk. A-4 ..... Spudded and shut down.
Smith, Brady et al's No. 1 P. J. Sorenson, Sec. 53, Blk. 4-A ..... Shut down 1,470 ft. for pipe.
E. L. Woodley, Jr., No. 1 Woodley, Sr., Sec. 13, Blk. 5-A.. Running 5-in.; underreaming to 2,235 ft.
Watchorn O. & G. Co.'s No. 1 F. E. Shelton, C NE NE Sec. 22, Blk. 24 ..... Rigged up and shut down.

WEST TEXAS WILDCATS

(Continued from Page 38)

Mystery Oil Co.'s No. 1 J. L. Crum, SE cor. NE Sec. 333, Blk. M-6, S. K. & K. Sur. — Spudded and shut down.

COCHRAN COUNTY

J. C. Whicker's No. 1 G. C. Landon, 300 ft. N and 5,800 ft. E SW cor. League 154 Sherman Co. Sch. Ld. — Shut down 1,550 ft.

COKE COUNTY

Lipan Oil Co.'s No. 1 S. M. Conner — Drilling 270 ft.

CONCHO COUNTY

Harry Adams et al's No. 1 Price, C SW Sec. 78, Blk. 71, Alex Gregg Sur. — Location.

Associated Pet. Co.'s No. 1 Sam Waring, SW cor. Jacob Getthardt Sur. No. 2,035 — Fishing bit 2,300 ft.

Arkansas Fuel Co.'s No. 1 Hartgrove, SW cor. NW Sec. 49, Blk. 70, H. & T. C. Sur., 12 miles E of Paintrock — 1,000,000 ft. gas 1,100-10 ft.; 4,500,000 ft. gas 1,142-47 ft.; small show oil in sandy lime 2,165 ft.; drilling 2,185 ft.

Mullins, Davis & Davenport's No. 1 William Hughes, C Sec. 6 — Drilling 2,210 ft.

The Exploration Co.'s No. 1 Hartgrove, Blk. 240, J. Schouch Sur. — Shut down 1,680 ft.

Gene Mays and others' No. 1 Hartgrove, NW SW Sec. 312, Mrs. A. Schmidt Sur. A-1,173 — Flowed salt water with little gas 1,550 ft.; drilling 1,580 ft.

Swoveland & Lewis' No. 1 Plants & Bacon, C E ½ Sec. 8, G. C. & S. F. Sur. — Location.

CRANE COUNTY

Cromwell & Jones' No. 1 University, NW cor. SW Sec. 47, Blk. 30 — Flowing 50 bbls. hourly by heads; agitated at 2,809-31 ft.

Gulf Prod. Co.'s No. 1 W. N. Waddell, NE cor. Sec. 12, Blk. B-25, School Land — Drilling 766 ft. with core drill machine.

Independent O. & G. Co.'s No. 8 Taylor, H. T. Sapp Sur., — Total depth 2,417 ft.; plugged back to 2,396 ft.; shut down; to be plugged.

McCamey & Zoch's No. 1 Cowden Brothers, cor. Sections 30, 31, 40, 41, Blk. X — Top salt 995 ft.; drilling 2,805 ft.

Prairie O. & G. Co.'s No. 1 Colette, SW cor. Sec. 36, Blk. 31, University Sur. — Four bailers sulphur water per hour at 4,000 ft.; shut down 4,170 ft.

Ben D. Simon & Cromwell's No. 1 Brookfield, C SE Sec. 23, Blk. 6, H. & T. C. Sur. — Three bbls. sulphur water per hour 2,670 ft.; shut down 3,525 ft.

Texas Dev. Co.'s No. 1 Cowden — Shut down 3,820 ft.

Zweifel and others' No. 1 W. H. Cowden, SE SE Sec. 16, Blk. X, C. C. S. D. Sur. — Hole full sulphur water 3,050 ft.; shut down 3,275 ft.

CROCKETT COUNTY

Anchor Oil Co. (Cumberland) No. 1 Couch, C NE Sec. 18, Blk. QR, D. & S. E. T. R. R. Sur. — Shut down 2,705 ft.

V. T. Bolin & Co.'s No. 1 P. C. Coates, NW cor. SW Sec 4, Blk. 2, I. & G. N. Sur. — Shut down for pipe 930 ft.

George A. Henshaw, Jr., No. 1 University, 1,320 feet from S and W lines SW Sec. 5, Blk. 14, University Sur. — Top salt 450 ft.; small show oil and gas 1,100-15 ft.; 300 ft. sulphur water 1,668 ft.; drilling 1,697 ft.

J. K. Hughes' No. 2-B Powell, Sec. 63, E. L. & R. R. Sur. — Fishing for 18 joints 8-in.; total depth 2,535 ft.

Magnolia Pet. Co.'s No. 2 Shannon, SE SE Sec. 9, Blk. BB, E. L. R. R. Sur. — Hole full sulphur water 2,390 ft.; drilling 3,185 ft.

William Shaffer and others' No. 1 University, C SE SE Sec. 9, Blk. 47, University Sur. — Total depth 2,344 ft.; plugged back to 2,208 ft.; shot 10 qts. 2,170-95 ft.; shut down.

William Schaffer et al's No. 2 University, 1,350 ft. N and 2,610 ft. E of SW cor. Sec. 9, Blk. 47, Univer. Land — Building rig.

W. W. Donnelly, Young, Logan & Hult's No. 1 Pierce, C SW Sec. 150, Blk. O, G. H. & S. A. Sur. — Rainbow show 454 ft. and 540 ft.; drilling 915 ft.

P. H. Williams' No. L. P. Powell — Drilling 200 ft.

World Oil Co.'s No. 1 Schneeman, N and W SE cor. Sec. 57, Blk. BB, G. C. & S. F. Sur. — Top salt 1,035 ft.; sulphur water 2,490 ft.; total depth 2,560 ft.

Young & Cromwell's No. 1 University, C SE Sec. 23, Blk. 31, University — Pay 1,160-65 ft.; shows at 1,505 and 1,574 ft.; drilling 1,850 ft.

CROSBY COUNTY

El Capitan Oil Co.'s No. 1 O. L. Slaton, NW cor. SW Sec. 5, Blk. B-9, E. L. & R. R. Sur. — Shut down 2,855 ft.

CULBERSON COUNTY

James H. Gardner and others' No. 1 Radford, C SE Sec. 29, Blk. 62, Pub. Sch. Ld. Sur. — Drilling 300 ft.

DICKENS COUNTY

Bowser Mickels and others' No. 1 Pitchford ranch — Shut down 3,250 ft., contract depth; may deepen.

Moutray Oil Co. and Clancey & English's No. 1 Blackwell, C SE Sec. 406, Blk. 1, H. & G. N. Sur. — Shut down 3,509 ft.

Moutray Oil Co. and Clancey & English's No. 1 Jones, SE cor. NW Sec. 311, Blk. 1, H. & G. N. Sur. — Shut down 3,550 ft.; to deepen.

ECTOR COUNTY

J. S. Cosden, Inc., et al's No. 2 Connell-A, NW cor. NE Sec. 13, Blk. B-16, School Land — Spudding.

FISHER COUNTY

Sinclair Oil & Gas Co.'s (was Bourbon Royalty Co.'s) No. 1 J. A. Danise, Sec. 6, Blk. K, T. & P. Sur. — Fishing 180 ft.

Marland Oil Co.'s (was Caldwell and others') No. 1 Rochelle, SW cor. NE Sec. 184, Blk. 3, T. & P. Sur. — Total depth 3,372 ft.; underreaming 6-in. 3,336 ft.

Marland Oil Co. and Texon's No 1 McCall — Moving in rig.

California Co.'s No. 1 R. G. Anderson, Sec. 22, Blk. 20, T. & P. Sur. — Hole full sulphur water 2,500 ft.; salt water 2,801-12 ft.; hole full salt and sulphur water 3,118-20 ft.; drilling 3,122 ft.

California Co.'s No. 1 Maggenheimer, SE cor. SW Sec. 15, Blk. 1, H. T. & B. Sur. — Hole full sulphur water 2,826-2,937 ft.; hole full water 2,975-3,000 ft. and 3,055-70 ft.; drilling 3,520 ft.

Danciger Oil & Refg. Co.'s (F. P. Zoch and others') No. 1 Lanius, NE cor. SE Sec. 15, Blk. Y, T. & P. Sur. — Drilling 3,345 ft.

Hucony Gas Co.'s No. 1 Langford, SW SW Sec. 7, Blk. 21, T. & P. Sur. — Small show oil 2,350 ft. and 2,808-09 ft. and 2,826-27 ft.; no gas; set 6-in. 2,728 ft.; trip packer one joint up; drilling 2,836 ft.

Ideal Oil Co.'s No. 1 Jameson, C SE Sec. 111, Blk. 1, H. & T. C. Sur. — Building rig.

Barber Oil Co.'s (was Mason Oil Co.'s) No. 1 W. A. Cross — Drilling second hole 1,150 ft.

R. W. Raney's No. 2 Maberry — Shut down for orders 2,725 ft.

Fred Phillips' No. 1 C. M. Webb, 756 ft. S and 1,050 ft. W NE cor. Sec. 2, Blk. K — Hole full salt water 2,220-40 ft. and 2,637 ft.; shut down 2,715 ft.

Stearns & Streete's No. 1 W. A. Howe, N and E SW cor. NE Sec. 12, Blk. 23, T. & P. Sur. — Drilling 2,720 ft.

F. P. Zoch and others' No. 1 R. M. Clayton, C of W 160 acres of R. M. Clayton Pre-emption Sur. — Odor gas 2,681-2,707 ft.; hole full salt water 2,712-55 ft.; sulphur water 3,090 ft.; show gas in black lime 3,128-32 ft.; black and gray lime 3,152-55 ft.; rainbow show and strong smell gas; drilling 3,465 ft.

FOARD COUNTY

Humble O. & R. and Navarro Oil Co.'s No. 1 L. McAdams, C S ½ Sec. 27, Blk. L, S. P. Sur. — Shut down for gas 2,466 ft.

GARZA COUNTY

Emerald Oil Co.'s No. 1 D. Boren, NW cor. NE Sec. 137, Blk. 5, H. & G. N. Sur. — Shut down for water 1,765 ft.

Pandem Oil Co.'s No. 1 Justice, SW cor. NW Sec. 2, Blk. 6, H. & G. N. Sur. — Rig.

GLASSCOCK COUNTY

Green et al's No. 1 F. G. Oxsheer — Rigging up.

J. S. Meriwether's No. 1 L. S. McDowell, C SW Sec. 43, Blk. 34, Twp. 2-S, T. & P. Sur. — Location.

R. R. Penn et al's No. 1 W. P. Edwards, C SE Sec. 11, Blk. 34, Twp. 2-S, T. & P. Sur. — Location.

HALL COUNTY

Seifert and others' No. 1 Owens, C NE Sec. 179, Blk. S-5, Dennison & Pacific Sur. — Spudded and shut down.

HOCKLEY COUNTY

El Capitan Oil Co.'s No. 1 Ellwood, SW cor. Sec. 55, Blk. A, R. M. Thompson Sur., 18 miles NW of Lubbock — Shut down for casing 2,580 ft.

HOWARD COUNTY

Bowers et al's No. 1 Chester Jones, C SW Sec. 32, Blk. 27, T. & P. (3,200-ft. test) — Spudded and shut down.

Fred Carey et al's No. 1 G. O. Chalk, SE NW Sec. 124, Blk. 29 — Shut down 250 ft.

Dixie Oil Co.'s No. 1 H. R. Clay, S and E NW cor. Sec. 154, Blk. 29, W. & N. W. Sur. —

Donollee et al's No. 1 Martin, SE cor. Sec. 41, Blk. 33, T-2-N, T. & P. Sur. — Spudding 320 ft.

Francis & Brunson's No. 1 J. W. Furrh, C SW Sec. 11, Blk. 31, T. & P. Sur., T-1-S — Location.

Marland Oil Co.'s No. 1 J. B. Harding, C SE Sec. 19, Blk. 33, T. & P. Sur. — Total depth 1,855 ft.; underreaming 8-in.

L. C. Harrison et al's No. 1 Dora Roberts — Rigging up.

Marland Oil Co. & Zoch's No. 1 Guitar Est. No. 1 — Rigging up.

Midwest Exploration Co.'s No. 1 H. R. Clay — Rigging up.

HARDEMAN COUNTY

Murchison Oil Co.'s No. 1 Ayres — Drilling 2,640 ft.

IRION COUNTY

Cash Dollar et al's No. 1 Abe Mayer, C NE Sec. 1, Blk. 10, S. P. R. R. Sur. — Drilling 2,500 ft.

Cash Dollar et al's No. 1 G. J. Bird, NE Sec. 16, Blk. 10, S. P. R. R. Sur. — Shut down 1,085 ft.

JEFF DAVIS COUNTY

Humble O. & R. Co.'s No. 1 Crecencio Flores — Moving in material.

J. K. Hughes Dev. Co.'s No. J. Z. Means, 600 ft. from N line and 2,000 ft. from W line of M. Robinson Sur. No. 1 — Drilling 1,950 ft.

JONES COUNTY

Atlantic O. P. Co. and Landreth's No. 2 Howell — Drilling 1,925 ft.

Bateman & Campbell's No. 1 Southard, C NW NW Sec. 43, Deaf & Dumb Asylum Lands — Shut down; fishing tools 1,990 ft.

Campbell et al's No. 1 L. H. Herndon, Sec. 6, M. E. P. & P. Sur. — Shut down 1,860 ft.

Consolidated Oil Co.'s No. 1 Armand & Taylor, C S½ SW Sec. 7, Blk. 4, H. & T. C. Sur. — Hole full salt water 1,470-90 ft.; shut down for 10-in. 1,510 ft.

Garland & Diamond's No. 1 E. D. Glynn, SE cor. Sec. 18, Deaf & Dumb Asylum Lands — Location.

Gault Brown et al's No. 1 Mrs. A. Zips — Moving in rig.

Gibson & Johnson's No. 1 Largent, C SE Sec. 50, Blk. 149, Dewitt Co. School Land — Testing casing 2,525 ft.

Gillette & Hickey & Cowboy Evans' No. 1 S. W. King, Manuel Bueno Sur. No. 197 — Good show oil 2,070 ft.; no gas; swabbed 10 bbls. oil and 30 bbls. water latest gauge; drilling 2,071 ft.

Gillette & Hickey's No. 1 M. E. Young, Tevanio Sur. No. 190 — Shut down 1,200 ft.

Grisham & Hunter & Wildman's No. 1 George B. Birchfield, Harrison Co. School Land — Rainbow showing 2,758-65 ft. 2,815-25 ft. and 2,860-70 ft.; total depth 2,960 ft.; underreaming.

Grisham & Hunter & Wildman's No. 1 Williams, Harrison Co. School Land — Two bailers oil brown sand 2,620-40 ft. through 50 ft. cavings; shut down 2,660 ft.; tested 1 bbl.

Hart & Cole's No. 1 Cranston, Sec. 10, Blk. 17, T. & P. Sur. — Hole full salt water 2,650 ft.; drilling 3,040 ft.

Hurley Oil Co.'s No. 2 John Sears — Hole full salt water 2,000 ft.; drilling 2,150 ft.

Hutson & Weaver's No. 1 Smith, Sec. 51, Blk. 18, T. & P. Sur. — Shut down for fuel 700 ft.

Kirk & Brewer's No. 1 H. Milsap — Drilling 700 ft.

Marland Oil Co.'s No. 1 Larson, C SE NE Sec. 188, B. B. D. & C. Sur. — Total depth 2,025 ft.; underreaming 8-in.

Marston Oil Co.'s No. 1 E. Howell, NW cor. SE W ½ of N 400 acres, Sec. 20, Blk. 19, T. & P. Sur. — Drilling 2,250 ft.

Marston Oil Co.'s No. 1 J. S. Swan, Robert Spears Sur. No. 280 — Drilling 465 ft.

Mid-Continent Petroleum Corp.'s No. 1 H. Evans, NE cor. SE SE Sec. 44, S. P. R. R. Sur. — Drilling 2,320 ft.

Midwest Exploration Co.'s No. 3 Thornton, Sec. 18, Blk. 9, T. & P. Sur. — Drilling 2,275 ft.

McLester et al's No. 1 Will Myatt, Sec. 10, James Warfield Sur. — Small show oil and water 1,658-60 ft.; drilling 2,730 ft.

Victor H. Martin's No. 1 Culbertson, Vincent Bell Sur. No. 6 — Shut down for orders 3,240 ft.

Phillips Pet. Co.'s No. 1 Thornton — Six bbls. water 1,930-45 ft.; missed pay; drilling 2,818 ft.

Shaw & Rathke and others' No. 1 Bristow, SE SE Sec. 1, J. H. Gibson Sur. — Shut down 500 ft.

W. G. Stough and others' No. 1 J. P. Willis — Shut down 730 ft.

Stebbins Oil Co.'s No. 1 J. M. Higgs — Drilling 1,370 ft.

Swensondale Oil Co.'s No. 1 Caton, SW NW Sec. 9, Deaf & Dumb Asylum Lands — Shut down 435 ft.

Tomberlin et al's No. 1 Oscar Clapp, CSL SW Sec. 37, Blk. 16, T. & P. Sur. — Moving in machine.

World Oil Co. and others' No. 1 A. W. Clark, SE cor. Sec. 15, Blk. 19, T. & P. Sur. — Hole full salt water 1,975-2,010 ft.; more salt water 2,305 ft.; slight show oil 2,425-36 ft. and 2,660-70 ft.; hole full sulphur water 2,930 ft.; total depth 2,933 ft.; underreaming 6-in.

World Oil Co.'s No. 1 W. H. Lee, 5,400 ft. N and 2,300 ft. E of SW cor. J. W. McKissick Sur. — Total depth 2,023 ft.; mudding 8-in.

Zeigler and others' No. 1 Reeves, C SE SE Sec. 164, B. B. B. & C. Sur. — Drilling 1,600 ft.

KENT COUNTY

Douglas Oil Co.'s No. 1 Scoggins — Drilling 310 ft.

Marland Oil Co. and Texon O. & L. Co.'s No. 1 Bilby — Location.

KING COUNTY

Gilson & Johnson — Setting 20-in. 245 ft.

Midwest No. 1 Patton — Snudding.

J. L. Pattison No. 1 Patton — Shut down 1,275 ft.

Phillips Petroleum No. 1 — Drilling 1,025 ft.; shut down for water.

Sinclair — Drilling 30 ft.

White Eagle No. 1 — Drilling 1,100 ft.

KNOX COUNTY

Deep Rock Oil Co.'s No. 1 Jones, CSL Sec. 111, Blk. C, H. & T. C. Sur. — Drilling 2,250 ft.

Deep Rock Oil Co.'s No. 1 Beavers, CSL Sec. 224, Blk. 44, elev. 1,441 ft. — Drilling 1,980 ft.

Deep Rock Oil Co.'s No. 1 Big Four, 1,270 ft. south and 2,590 ft. west of NE cor. Sec. 31, Blk. 4 — Cable tools, drilling 670 ft.

Humble O. & R. Co.'s No. 1 Goode, 1,940 ft. S and 200 ft. W of NE cor. Sec. 7, H. T. & B. Sur. — Rigging up standard tools.

LOVING COUNTY

Kingwood Oil Co.'s No. 1 T. O. Moore, C NE Sec. 2, Blk. C-25, Pub. Sch. Ld. — Building rig.

Owens & Sloan's No. 1 W. D. Johnson, C SE Sec. 20, Blk. 53, T-2, T. & P. Sur. — Rigging up.

LUBBOCK COUNTY

Sam Arnett and others' No. 1 Bowles Ranch — Shut down 400 ft.

LYNN COUNTY

The Hart Oil Corp.'s No. 1 C. O. Edwards, NW NW Sec. 5, Blk. 2.... Shut down 1,400 ft.

MENARD COUNTY

J. R. Lewis and others' No. 1 White, C NW Sec. 8, J. Mabrey Sur.... Shut down 415 ft.
Clark and others' No. 1 Klothman, NW NW Sec. 77, Kulman Sur.... Shut down 580 ft.

MITCHELL COUNTY

Eastland Oil Co.'s No. 2 C. M. Adams.... Cementing 6-in. 2,780 ft.
California Co.'s No. 1 W. H. Butler, Lease 2.... Drilling 3,030 ft.
California Co.'s No. 1 E. Morrison, Lease 1.... Drilling 1,910 ft.
Teas & Stivers' No. 1 Dowlin, NW cor. Sec. 11, Blk. 27, T. & P. Sur.... Rig.
B. H. Cogdell's No. 1-C F. E. McKenzie, WL NW NE Sec. 226, Blk. 1-A, H. & T. C. Sur.... Shut down 125 ft.
Robert Thraves' No. 1 C. Way.... Rig.
Paul Teas' No. 1 Ed Strain.... Drilling 1,550 ft.
Morrison & Thompson's No. 1 Griffith, SE SE Sec. 45, Blk. 29, T. & P. Sur.... Drilling 2,590 ft.
B. E. Walter and others' No. 1 J. E. Dollen, NW cor. SW Sec. 11, Blk. 27, T. & P. Sur.... Drilling 3,870 ft.
J. C. Yancey's No. 1 Saunders, 400 ft. N and 1,700 ft. E of SW cor. Sec. 25, Blk. 25, T. & P. Sur.... Spudded and shut down.

MOTLEY COUNTY

Chechaco Oil Co.'s (J. W. Pennington et al of Amarillo) No. 1 J. W. Owens, NW cor. Sec. 26, Blk. 4 (15,000-acre solid block).... Shut down 1,050 ft.
Wheeler et al's No. 1 C. D. Bird, C NE Sec. 4, Blk. S, Stephens Sur.... Rig on ground.

NOLAN COUNTY

A. G. Malone et al's No. 1 J. B. Carlyle.... Location.
A. G. Malone et al's No. 1 M. C. McElmurry.... Spudded and shut down.
J. H. Winemiller Corp.'s (was Peters et al's) No. 1 Booth.... Drilling 920 ft.
Stein & Greeben's No. 1 L. W. Ross.... Location.
Thomas & Reynold's No. 1 Allen, C. W. ⅛ NW Sec. 58, Blk. X, T. & P. Sur.... Total depth 840 ft.; repair engine.
Walford et al's No. 1 H. D. Simpson.... Location.
Herbert Oil Co.'s (was McClesky and others') No. 1 Pepper, SE cor. SW Sec. 29, Blk. 22, T. & P. Sur.... Rig on ground.
Phillips Pet. Co.'s No. 1 Scott, Sec. 58, Blk. 21, T. & P. Sur.... Drilling 200 ft.
Zweifel and others' No. 1 Longbotham, C SE Sec. 130, Blk. 1, H. & G. N. Sur.... Shut down 1,150 ft.

PARMER COUNTY

Humble O. & R. Co.'s No. 1 Farwell, elev. 4,005 ft.... Drilling 1,300 ft.

PECOS COUNTY

Arkansas Fuel Co.'s No. 1 H. Holmes, 2,040 ft. north and 1,520 ft. west SE cor. Sec. 16, Blk. 178, T. C. R. R. Sur.... Total depth 440 ft.; underreaming 12-in.
Benedum & Trees' No. 1 J. C. Trees, C Sec. 50, Blk. 8.... Shut down 3,110 ft.
Buell and others' No. 1 Batcheler, C N half NE Sec. 89, Blk. OW, G. C. & S. F. Sur.... Show oil 1,700 ft.; flowed sulphur water 1,175 ft.; fishing 1,985 ft.
Buell & Hagan's No. 1 McKenzie, Sec. 8, Blk. 604, Mrs. A. L. Canon Sur., elev. 3,009 ft.... Drilling 450 ft.
Buell & Hagan's No. 1 University, C N ½ SE Sec. 31, Blk. 24.... Bailed 1½ bailers live oil 2,460 ft.; drilling 2,795 ft.
Buell & Hagan's No. 1 Jasper, 1 mile south and west NE cor. Jasper Co. School Land No. 104.... Location.
California Co.'s No. 1 Union Land Co., 1,650 ft. N and 990 ft. E of most northerly SW cor. Sec. 8, Blk. 110, T. C. R. R. Sur.... Top salt 834 ft.; top dolomite 1,442 ft.; drilling 1,465 ft.
Cromwell & Kimberlin's No. 1 Blackman, C NW Sec. 24, Blk. 3, H. & T. C. Sur., elev. 2,393 ft.... Top salt 890 ft.; shut down 1,400 ft.
Crosby Drilling Co.'s No. 1 O. G. Yates, Sec. 70, Blk. 1, I. & G. N. Sur., elev. 2,328 ft.... Small show oil 880-85 ft.; gas 920-25 ft.; show oil 925-30 ft.; hole full salt water 930-40 ft.; flowing sulphur water 1,540-77 ft.
Humble O. & R. Co. and Kirby Oil Co.'s No. 1 Rheinstrom, C NE SW Sec. 30, Blk. 2, H. & T. C. Sur., elev. 2,362 ft.... Top salt 830 ft.; small show gas 2,000 ft.; show water 2,260 ft.; hole full sulphur water 2,290 ft.; drilling 2,350 ft.
Humble O. & R. Co. and Kirby Oil Co.'s No. 1 J. T. McElroy, NW SW SE Sec. 124, Blk. 10, H. & G. N. Sur.... Location.
Del Rio Drilling Synd.'s No. 1 K. C. & Ft. Stockton, C SW Sec. 19, Blk. 178, T. C. Sur.... Shut down 740 ft.
Garland & Mott's No. 1 El Paso Cattle Loan Co., C NE Sec. 26, Blk. 126, T. & S. L. Sur.... Location.
Kershaw & Livingston's No. 1 Cannon, SW cor. NE Sec. 54, Blk. A-2, T. C. R. R. Sur.... Location.
Mid-Kansas O. & G. Co.'s No. 1 Smith Taylor.... Rigging up.
Mid-Kansas O. & G. Co.'s No. 4 Yates A.... Rigging up.
Mid-Kansas O. & G. Co.'s No. 1 Yates C (was No. 1 Acct. 3).... Moving in machine.
Quinby Oil Co.'s No. 1 Townsite, Sec. 1, Blk. 267, Client Addition Sur. Ft. Stockton.... Shut down for casing 1,280 ft.
Quinby Oil Co.'s No. 1 Bennett, C NW 592, Blk. 105, G. C. & S. F. Sur.... 200 ft. oil in hole from 1,216 ft.; shot 20 quarts 1,208-20 ft.; fishing tools 1,400 ft.
Quinby Oil Co.'s No. 1 A. A. Gray, 660 ft. north and 1,320 feet west SE cor. Sec. 593, Abst. 3,009.... Drilling 350 ft.
Texon O. & L. Co.'s No. 1 I. G. Yates, C Sec. 55, Blk. 1, I. & G. N. Sur.... Swabs 30 bbls. 1,268-1,300 ft.
Texon O. & L. Co.'s No. 2 I. G. Yates.... Drilling 140 ft.
Texon O. & L. Co.' No. 3 I. G. Yates.... Location.
Texon O. & L. Co. and Marland Oil Co.'s No. 1 Blakesley.... Rig; drilling water well.
John Dropplemann's No. 1 Mrs. L. Hershenson, Sec. 7, Blk. 51, T. & P. Sur. T-10.... Drilling 346 ft.
World Oil Co.'s No. 1 Serf, SW cor. NE Sec. 10, Blk. 139, F. & St. L.... Moving in material.

REAGAN COUNTY

The Texas Co.'s No. 2 J. D. Sugg, C Sec. 87, Blk. 2, T. & P. Sur.... Top salt 860 ft.; top lime 2,110 ft.; hole full sulphur water 2,130-50 ft.; cased off; drilling 2,500 ft.
Tidal Oil Co.'s No. 1 University, NW cor. NE Sec. 20, Blk. 8.... Rigging up.

REEVES COUNTY

Deep Rock Oil Co.'s No. 1 Caldwell, C SW Sec. 22, Blk. 58, T. & P. Sur., Twp. 8.... Drilling 2,340 ft.
Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Pub. Sch. Ld.... Spudded 20 ft. and shut down.
Humble Oil & Ref. Co.'s No. 1-B Kloh, C NE Sec. 47, Blk. 56, T. & P. Sur. T-2-S.... Fishing 1,380 ft.
World Oil Co.'s No. 1 Biggs, C SE Sec. 65, Blk. 112, Pub. Sch. Ld. Sur.... Total depth 1,810 ft.; skidded rig.

RUNNELS COUNTY

Associated Pet. Co.'s (was Bell & Moore's) No. 1 W. W. King, 1,200 ft. W of NE cor. Lge. 14, J. V. Cobrera Sur.... Spudded and shut down.
Moore & Bell's No. 1 Ferguson, 2,640 ft. S and 1,320 ft. E of NW cor. F. J. Ford Sur. No. 152.... Spudded and shut down.
Lou Ladd et al's (was Frank Yates') No. 1 R. M. McMillan.... Spudding 260 ft.

SCHLEICHER COUNTY

Beavers & Leath and others' No. 1 J. A. and W. T. Whitten, C NW Sec. 35, Blk. 11, T. O. Sur.... Spudded and shut down.
Thomas Grey et al's No. 1 Ball Robinson, C NW Sec. 25, Blk. M, G. H. & S. A. Sur.... Spudded and shut down; drilling water well.

SCURRY COUNTY

Northwest Co.'s No. 1 T. C. Stinson, NE NW SW Sec. 101, Blk. 97, H. & T. C. Sur.... Tested 8 bbls. 1,745 ft.; another pay at 3,402-07 ft.; bailed 70 bbls. oil in 4 hours and bailed dry; shut down 3,900 ft.

STERLING COUNTY

J. P. Williams' No. 1 Clark, NE NE SW Sec. 7, Blk. 8, G. C. & S. F. Sur.... Drilling 850 ft.

STONEWALL COUNTY

McCamey & Zoch's No. 1 J. Ward, C SW Sec. 153, Mrs. Ward Dobbs Sur., 3 miles NW of Aspermont.... Moving in material.

TAYLOR COUNTY

City of Abilene's No. 1 fee, NW SW SE Sec. 66, Lunatic Asylum.... Shut down 2,264 ft.
Dorning & Perrine's No. 1 J. A. Hammer, center N 100 acres, Sec. 23, Blk. 19, T. & P. Sur.... Fishing for bit 250 ft.
Oil Operators Trust Co.'s (was Gibson & Johnson's) No. 1 Haines & Hamilton, NE cor. W ½ SE Sec. 38.... Shut down for casing 2,503 ft.
Gibson & Johnson's No. 1 Hendry.... Drilling 800 ft.
Grisham & Hunter's No. 1 D. D. Huddleston, CWL Lot 29, League 146, Grimes Co. School Land.... Small show oil 2,332 ft.; drilling 2,400 ft.
W. E. Halbert et al's No. 1 Hunt, C SE Sec. 124, Blk. 64, H. & T. C. Sur.... Shut down 1,265 ft.
Humble O. & R. Co.'s No. 1 Mattie Jacobs.... Drilling 785 ft.
Midwest Explin. Co.'s No. 1 Dora Smith, Jose Gabo. Sur.... Shut down 1,520 ft.
Midwest Explin. Co.'s No. 1 Toombes, Alex Thompson Sur. No. 37.... Drilling 1,780 ft.
Mitchell & Breene's No. 1 Tittle.... Location.
Morrison & Thompson's No. 1 Mrs. Alice Rose, SW cor. NE Sec. 29, Blk. 19, T. & P. Sur.... Total depth 1,085 ft.; underreaming 10-in.
Owen & Sloan's No. 1 Lattimer.... Drilling 200 ft.
Roeser & Pendleton's No. 1 Sam Hutman, C W ½ NW Sec. 64, Blk. 5, T. & P. Sur.... Shut down for fuel 710 ft.
Sanger O. & R. Co.'s No. 1 Ike Brown NE cor. Sec. 54, Blind Asylum Land.... Shut down 1,900 ft.
Sanger Oil & Refining Co.'s No. 1 Gillespie, Sec. 7, Lunatic Asylum Land.... Total depth 3,970 ft.; straight-reaming 6-in.
World Oil Co.'s No. 1 J. R. Griffith.... Rigging up.

TERRELL COUNTY

E. T. Williams and others' No. 1 Robertson, C NE Sec. 71, Blk. D-10, T. C. Sur.... Shut down for casing 2,800 ft.; hole full of water.
Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M. K. T. Sur. (22 miles northeast of Sanderson).... Location.

TERRY COUNTY

Kingsland Oil & Potash Co.'s No. 1 Brownsfield, C NW SW SW Sec. 7, Blk. 1-A, E. L. R. R. Sur.... Shut down 1,050 ft.

TOM GREEN COUNTY

Fitzgerald et al's No. 1 Bennett.... Rig.
Marland Oil Co.'s No. 1 Llano.... Total depth 612 ft.; underreaming 12-in.

UPTON COUNTY

Beaty et al's No. 1 J. F. Lane.... Top salt 880 ft.; sulphur water 2,370 ft.; show oil 2,250-65 ft.; drilling 2,380 ft.
W. W. Donnelly and others' No. 1 University, C SW Sec. 21, Blk. 4, University.... Top salt 1,560 ft.; shut down 2,165 ft. in salt and anhydrite.
Gulf Production Co.'s No. 1 J. T. McElroy-B, C SW NE Sec. 187, Blk. F.... Top salt 1,220 ft.; drilling 2,650 ft.
Hults and others' No. 1 Giddings, C NW Sub. Sec. 12, Throckmorton Co. School Land.... Top salt 1,515 ft.; shut down 3,615 ft. for pipe.
Humble O. & R. Co.'s No. 4 Ricker.... Show oil and gas 2,110 ft.; drilling 2,120 ft.
Marland Oil Co.'s No. 3 Burleson, T. C. Jones Sur. No. 100.... First pay 2,205 ft.; second pay 2,295 ft.; 2,000 ft. sulphur water 3,390-95 gt.; 1,000 ft. sulphur water 4,135 ft.; drilling lime 4,255 ft.
Marland Oil Co.'s No. 34 Burleson, Sec. 100, T. C. Jones Sur.... Shut down 3,255 ft.
Marland Oil Co.'s No. 3 Benton Land, Julia Prater Sur. No. 1.... Shut down 515 ft.
Prairie O. & G. Co.'s No. 1 Lane-C, NWC SW SW Sec. 3, G. C. & S. F. Sur.... Top salt 465 ft.; drilling 970 ft.
Sartain & Davis No. 1 Bull, SW NE Sec. 48, Blk. 41, T. & P. Sur.... Rig burned 3,290 ft.; rebuilt.
Snowden & McSweeney's No. 1 E. S. Hughes, NW cor. their 80 acres in Sec. 4, William Teer Sur.... Top salt 585 ft.; drilling 1,125 ft.
The Texas Company's No. 23 King.... Top salt 512 ft.; drilling 1,928 ft.

VAL VERDE COUNTY

A. Blume and others' No. 1 Moore estate, Sec. 183, J. Mitchell Sur.... Shut down 3,000 ft.
Curse Williams' No. 1 Holman, NE NE Sec. 5, Blk. N, G. H. & S. A. Sur.... Drilling 2,600 ft.
Douglas Oil Co.'s No. 1 Sellars, C SE Sec. 82, Blk. A, I. & G. N. Sur.... Straightening hole 2,350 ft.
East Del Rio Oil Co.'s No. 1 Russell, E cor. Sec. 183, Del Rio Town Sur.... Shut down 3,142 ft.
Hiawatha Oil Co.'s No. 1 Sellars, C Sec. 1,031, Blk. A, I. & G. N. Sur.... Hole full salt water 2,455 ft.; fishing tools 2,525 ft.
Independent O. & G. Co.'s No. 1 Whitehead, Sec. 81, Blk. D, G. C. & S. F. Sur.... Location.
Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I. & G. N. Sur.... Shut down 3,775 ft.
O. O. Owens' No. 1 Mills.... Drilling 960 ft.
Transcontinental Oil Co.'s No. 1 W. S. Stevenson, NE SE NE Sec. 3, Blk. 4, I. & G. N. Sur.... Hole full sulphur water 4,400 ft.; fishing tools 4,412 ft.

WARD COUNTY

Marland Oil Co.'s No. 1 J. Sealey, C SE Sec. 78, Blk. A, G. M. M. & A. Sur.... Hole full fresh water 970-80 ft.; top salt 1,100 ft.; drilling 2,200 ft.

WINKLER COUNTY

White Eagle O. & R. Co.'s (was Gibson & Johnson's) No. 1 R. A. Lock, 1,320 ft. west of NE cor. Sec. 30, Blk. 74, northwest of discovery well.... Building rig.
Champlin Drilling Co.'s No. 1 C. W. Cowden, C SW Sec. 21, Blk. C-23, Pub. Sch. Ld., elev. 2,889 ft.... Total depth 900 ft.; trying to free 8-in. pipe.
McCullough Oil Co.'s No. 1 Tobe Morton, CEL Sec. 20, Blk. B-12, Pub. Sch. Ld.... Set 10-in. 1,420 ft.; drilling.
R. S. Matthews and others' No. 1 State, C Sec. 7, Blk. A-57, Pub. Sch. Ld. Sur. elev. 3,120 ft.... Skidded rig; spudding.
Independent Oil & Gas Co.'s No. 1 Hendricks, Sec. 42, Blk. B-5, Pub. Sch. Ld.... Drilling 2,150 ft.; no salt.
F. P. Zoch and others' No. 1 John Sealy, C SW Sec. 73, Blk. A, G. M. M. & A. Sur., elev. 2,709 ft.... Top salt 1,062 ft.; top lime 3,200 ft.; 150 ft oil 3,216-17½ ft.; 2,800 ft. salt water 3,268 ft.; shut down 4,040 ft.; 300 ft. sulphur water this depth.
L. D. Ladd, Hill and others' No. 1 Amburgey, C NW Sec. 24, Blk. B-7, Pub. Sch. Ld. Sur., elev. 3,033 ft.... Top salt 1,220 ft.; top lime 3,365 ft.; total depth 3,447 ft.; rig burned.
Pure Oil Co.'s No. 1 Hendricks, SW cor. Sec. 41, Blk. B-5, Pub. Sch. Ld.... Rig.
Skelly Oil Co.'s No. 1 M. M. Leeman, 1,320 ft. east of SW cor. Sec. 21, Blk. 75, elev. 2,951.... Top salt 1,167 ft.; drilling 1,700 ft.
Southern Crude Oil Purchasing Co.'s No. 1-C (was No. 2) Hendricks, NE cor. Sec. 33, Blk. B-5, Public School.... Top salt 1,910 ft.; drilling 2,839 ft.
Southern Crude Oil Purchasing Co.'s No. 2-C (was No. 3) Hendricks, Sec. 33, Blk. B-5.... Top salt 1,901 ft.; cementing 8-in. 2,553 ft.
Llano Oil Co.'s No. 1 Scarborough, center Sec. 1, Blk. C-22, Pub. Sch. Ld., elev. 2,921 ft.... Top salt 1,115 ft.; hole full water. 1,321 ft.; 10-in. set 1,570 ft.; total depth 1,870 ft.; bailed water down 1,500 ft.
Group 1 Humble O. & R. Co.'s No. 1 T. G. Hendricks, C SE Sec. 36, Blk. 27.... Spudding.
Humble O. & R. Co.'s No. 1 T. G. Hendricks, S and W NE cor. W ½ NE Sec. 33, Blk. B-5, Public School Land.... Rig.
Southern Crude Oil Pur. Co.'s No. 3-C Hendricks, SE cor. NE Sec. 33, Blk. B-5.... Drilling 1,210 ft.

JERSEY AND LOUISIANA COMPANIES CURTAILING CRACKING OPERATIONS

By L. M. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

The Standard Oil Co. of New Jersey and the Standard Oil Co. of Louisiana have further curtailed their cracking operations because of the gasoline situation. This action focuses attention on the policy of the New Jersey organization in favor of reducing pressure still operations as against straight refining operations as the most economical means of handling the present situation and of guarding against an overproduction of gasoline which will further affect prices adversely.

In the past two months there has been a heavy piling up of gasoline stocks. Irrespective of where these accumulations are made—whether the gasoline is in strong or weak hands—they have a weakening psychological effect. On the whole, the accumulations are in the hands of the large companies, and it is believed that some of these, notably the Standard Oil Co. of New Jersey, are desirous of cutting down actual gasoline output and guarding against any large increased building up of stocks.

The importance of the industry working out a refining operating schedule that will guard against an overproduction of refined products, and particularly of gasoline, was never more apparent than at the present time. It has been demonstrated that refining and cracking equipment is adequate practically to provide gasoline currently to meet current production, and that the large stocks of gasoline built up previously in the winter months are not necessary in as great a proportionate volume as formerly.

With a close check on production and consumption provided by present statistical sources, the petroleum refining industry can fairly accurately determine the trend of supply and demand. In other industries, such as the automotive and steel industries, the manufacture of these products is closely regulated in accordance with demand. If the oil industry this year expects to receive a living price for gasoline it is apparent that it must carefully watch its step as regards gasoline production.

Conservative Operation

Irrespective of the method of making gasoline, whether by straight refining methods or by cracking, a demoralized price for gasoline will prove unprofitable to most of the industry. Under the circumstances, the one thing clearly indicated at present is that some form of gasoline production curtailment is necessary, this being true because of the large crude-oil production, the mounting stocks of crude and refined products and the large gasoline production capacity. Perhaps, curtailment is not exactly the right term, although in the case of the action of the Standard Oil Co. of New Jersey it appears to be an actual curtailment. Broadly speaking, what is desirable is caution to guard against an overproduction of gasoline, and this means conservative operation of existing units and delay in starting up new equipment which would largely increase output.

It is apparent that officials of the Standard Oil Co. of New Jersey regard the curtailment of its cracking operations as the most feasible from an economic and company standpoint in the present situation. It is learned that the company has now shut down 340 units, including shutdowns in the Baton Rouge plant of the Standard Oil Co. of Louisiana. These shutdowns are divided as follows: 200 at the Bayway refinery in New Jersey, 100 at Baton Rouge, and 20 each at Charleston and Baltimore. All the equipment shut down is Burton equipment.

While some of the equipment is old, it is denied that the shutdown simply amounts to a closing down of obsolete equipment. This equipment, it is understood, operated steadily during all of 1926 and until recently and under ordinary conditions would be continued in operation.

The units might be figured as giving an output of about 80 bbls. of gasoline a day, and their shutdown therefore figures to a curtailment of something like 27,000 bbls. of gasoline daily. However, the actual curtailment is not as considerable as this because of increased straight refining operations, but it is understood that something like a 10 per cent cut has been made in the total gasoline production of the organization.

It is also learned that additional cracking units will probably be closed and that the movement for curtailment has only got under way. Under the circumstances it is apparent that the company intends to lead the way in guarding against a further piling up of gasoline stocks until the gasoline season is fairly launched.

This is not the first time that a general curtailment of cracking operation has been put in effect. During 1923 and 1924 and part of 1925 a considerable proportion of the Standard of New Jersey's cracking equipment was discontinued.

From an economic standpoint it would appear that there is much to be said for reducing cracking operations as a means to bolster the faltering price of gasoline. Mainly a general reduction in cracking operations, affecting the total output of gasoline, would be a means of bringing about some assurance of a stable tank wagon market during the period of greatest consumption.

This involves mainly two things: First, idle cracking equipment, and, second, storing gas oil. A shutdown of cracking equipment does not involve any great loss from lack of use as the chief factor of depreciation is corrosion and this is not present when the units are not operating. Refineries cracking units on a day-by-day royalty basis would save their royalty. In the matter of storing gas oil as against crude oil and gasoline, there is no evaporation and a minimum of fire risk in the case of gas oil.

In the case of any shutdown or accumulation of storage oil, the financial burden cannot be escaped, and it is apparent that the different companies will work out the problem in accordance with their individual situations. At the same time the general situation threatening overproduction of gasoline cannot be overlooked as affecting the profits of all the units of the industry.

Present Situation

Continuance of capacity cracking operations, or of large scale cracking operations, at the present time obviously entails a large gasoline production with the necessity of carrying considerable gasoline stocks. The immediate effect of the low market for gasoline and the relatively high price for cracking charging stock was to force a shutting down of cracking operations, rendered unprofitable. It is apparent, however, that a good many refiners have not acted to cut their cracking operations but that they are pursuing the other policy, namely, of reducing their straight refining operations and holding up their cracking operations. A lower gas oil market has enabled more profitable operation of efficient cracking equipment, in spite of the low gasoline prices.

That it is incumbent on the industry to go slow about making too much gasoline is apparent, and whichever gasoline manufacturing policy is pursued by the various companies they should give serious thought to preserving a price that will permit the most profitable operation of plants over the critical months ahead.

It is possible to figure that a reduction of something like 20 per cent in present gasoline production would bring about an immediate stiffening in the Group 3 refinery price for gasoline, and that 2 or 2½ cents added to the price would make it possible to store gas oil free of cost.

WINKLER COUNTY OPERATIONS CURTAILED

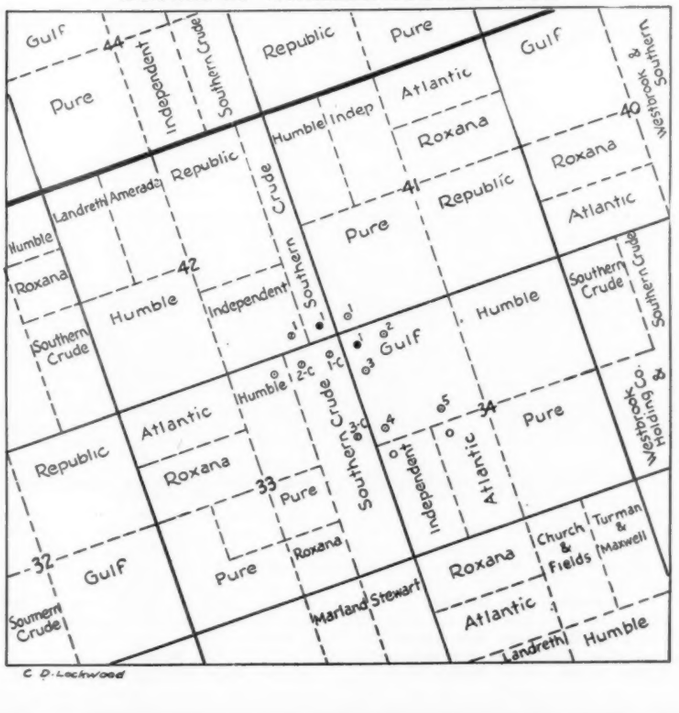
(Continued from Page 32)

the Brandon & McCamey hole, around November 1.

Winkler County has no railroad, the nearest line being that of the Texas & Pacific, which passes through Ector and Ward Counties. The Southern Crude Oil Purchasing Co. is building a loading rack at a new town called Wickett on the T. & P. in Ward County, and is laying a 6-inch line from the Winkler County Pool to the loading rack. The Gulf Production Co. is also planning to lay a line from the pool to Wickett.

Just south of the pool, as shown on the map, is the new town of Wink. It is situated on a bare spot of hard ground amongst the sand, and is ideally located at the intersection of the two highways which serve this country.

DETAIL OF WINKLER COUNTY POOL



PRAIRIE PREPARING TO STORE CRUDE OIL

(Continued from Page 29)

duction of fields in which the Prairie Oil & Gas Co. does business. When the decline commences it will find that company well fortified with crude.

NEW YORK, Apr. 5.—Reports in financial circles here today were to the effect the Prairie Oil & Gas Co. is planning a big bond issue. It was felt part of the money, at least, might be desired to finance a large natural gas pipeline from the Panhandle Field in Texas to Denver, Colo., it being understood interests affiliated with the Prairie are interested in that project.

G. W. JOHNSON DEAD

Gordon W. Johnson, aged 49, a prominent figure in the Denver offices of the Continental Oil Co., passed away in the Colorado General Hospital at Denver.

Mr. Johnson entered the service of the Standard Oil Co. of New Jersey when he was only 15 years of age. He was later transferred to the Atlantic Refining Co. at the dissolution of the Standard companies and was moved to Pueblo, Colo., with the Atlantic Refining Co. and the West India Oil Co. With the latter firm he was placed in Porto Rico, but he returned to Colorado after several years and took service with the Continental Oil Co. with which he has been in active service until his death.

DEATH OF J. H. M'NABB

J. H. McNabb, for four years in charge of the Ohio Oil Co.'s warehouse at Casper, died at the Casper Hospital after an operation for apendicitis. Mr. McNabb was 40 years old and went to Casper from the Ohio Oil Co.'s offices at Findlay.

JOSEPH WOODWORTH DIES

CHATHAM, Ontario, Apr. 2.—Joseph Woodworth, for over half a century a resident of Petrolia, died at Orillia, Ontario, recently in his eighty-third year. In the early days Mr. Woodworth was an expert tanker, being employed by the Stokes and Carmichael oil interests.

J. B. PORTER DEAD

James Bennett Porter, aged 54, special representative of the Oklahoma Natural Gas Corp., suffered a stroke and died a few hours later at his home in Tulsa. Mr. Porter had been connected with the oil and gas industry in Tulsa since 1915 and since 1917 had been superintendent of pipe lines and later special representative of the Oklahoma Natural Gas Corp. He formerly served as a member of the executive board of the Oklahoma Utilities Association and was chairman of the gas division. He at one time had charge of the Fort Pitt Gas Co.

DEATH OF JOSEPH PARKS

Joseph Parks, aged 46, one of the oldest employes of the Sun Oil Co., is dead at San Antonio, Tex. He started with that company in Spindletop in 1903 as a field worker, and advanced until he became manager for the Sun in Arkansas in 1920.

TOO LATE TO CLASSIFY

Eastern Manufacturer Desires

SALES REPRESENTATIVE

To call on Refineries through-out the country, with a high quality, well known, nationally advertised Specialty line. Must be a high class man, who can produce results. Reply in detail first letter giving age, references, experience, salary, etc.

BOX B-795,
The Oil and Gas Journal,
Tulsa, Okla.

TEXAS PANHANDLE

(Continued from Page 40)

Whittenburg, Section 13, Block Y, was not helped by a shot of 100 quarts in lime at 2,905-30 feet. It originally was a 100-bbl. well and responded after the shot with 100 bbls.

Phillips Petroleum Co. and Gibson Oil Corp. abandoned the rigs for Nos. 11 and 12 J. A. Whittenburg, Section 63, Block 46. Phillips company and Gibson company's No. 8 J. A. Whittenburg, M. Whitley Survey, was good for 50 bbls. in lime at 2,857-89 feet. The well was shot with 90 quarts and production increased to 150 bbls. daily. Same operators' No. 10 J. A. Whittenburg, M. Whitley Survey, was shot with 100 quarts in lime at 2,929-61 feet and is making 150 bbls. daily. Phillips Petroleum Co. and Pulaski Oil Co.'s No. 7 H. E. Smith, Section 12, Block Y, is an abandoned rig. Skiatex Oil Co.'s No. 5 W. L. Kingsland, Section 6, Block Y, was good for 50 bbls. in lime at 2,900-86 and was shot with 450 quarts and completed as a 250-bbl. well. Southwestern Oil & Development Co.'s No. 1 Kingsland, Section 4, Block Y, was shot with 120 quarts in lime at 2,890-2,935 feet and completed as a 50-bbl. well; total depth 2,938 feet.

Hemphill County

Hoover and associates' No. 1 Shaller, Section 4, was spudded and has been temporarily abandoned.

Sherman County

Phillips Petroleum Co. and Savoy Oil Co.'s No. 1 C. Roach, Section 161, Block 1-C, was plugged at 3,810 feet. The test had 500,000 feet of gas at 2,840 feet and a hole full of water at 3,485 feet.

Wheeler County

Continental Oil Co.'s No. 2 W. C. Company, NW cor. SW, Section 11, Block 27, had its big pay in granite wash and sandy lime at 2,265-76 feet and was completed at that depth as a 725-bbl. well. The first pay was encountered at 2,230 and at 2,235 feet the well sprayed 25 bbls. daily. The first gas was found at 2,195 feet. Magnolia Petroleum Co.'s No. 2 E. C. Johnson, Section 93, Block 27, flowed 50 bbls. a day from granite wash at 2,330-48 feet, but was completed as a 20-bbl. well. The first gas was found at 2,225 feet. Marland Oil Co.'s No. 1 W. E. Bentley, SW cor. NE Section 9, Block 24, made 960 bbls. from granite wash at 2,328-35 feet and averaged 950 bbls. daily for three days.

DAILY AVERAGE PRODUCTION
AMARILLO DISTRICT
Week ending April 2, 1927
Hutchinson County

Company—	Wells	Dy. Ave. This Week
Alaska Pet. Co.	1	30
Amerada Pet. Corp.	9	740
American Ref. Co.	7	360
Apex Oil Co.	2	700
Badger Oil Co.	2	55
Barnsdall Oil Co.	2	120
R. G. Barnum	1	10
Black Diamond Oil Co.	1	10
Block Y Pet. Co.	1	0
Blockins & Kistler	2	270
Buffalo Oil Co.	2	150
Canadian River Oil Co.	6	310
Center Dome Oil Co.	2	20
Centerfield Oil Co.	1	0
Co le-Whittenberg	4	360
Continental Oil Co.	1	0
Currie Brothers and J. R. Phillips	3	610
Cockrell & McElroy	4	340
Collier & Taylor	1	20
Delmar Oil Co.	2	30
Derby Oil Co.	8	1,970
Devonian Oil Co.	8	510
Dixon Creek Oil Co.	39	7,110
Double Five Oil Co.	1	40
Douglas Oil Co. and Cline	2	20
E. J. Dunnigan et al	2	220
Echo Oil Co.	3	2,050
Empire Gas & Fuel Co.	26	4,005
Fly Blackburn Oil Co.	2	75
Four Y Oil Co	1	0
Franterhouse & Wetzel	1	40
Gates Oil Corp. (F. E. Kistler)	4	195
Goldeline Oil Co.	5	400
Golding & Phillips	1	5
Gopher Oil Co.	1	5
Grimes & Watts	1	35
Gulf Prod. Co. and Panhandle Ref. Co.	54	5,715
Gulf Prod. Co.	36	3,520
L. R. Hagy	1	0
Heywood et al (Prairie et al).	1	10
J. K. Hughes Dev. Co.	22	1,550
Holmes, Currie & McKnight	2	160
W. H. Holmes	2	180
Homestead Oil Co.	1	15
Hutchinson Co. Oil Co.	1	0
Dan A. Japhet	5	470
Julian Pet. Corp. (Canyon	5	750
Kistler Oil Co.	2	910
Kistler & Lenix	2	470
Lenix Oil Co. et al	1	40
J. H. Lenix	1	10
Lenix & Patterson	2	425
Lucky 10 Oil Co.	4	140
Manhattan Oil Co.	1	90
Marland Oil Co.	59	4,050
Midwest Exploration Co.	20	3,670
Minnehoma Oil Co. and Kistler	2	700
McMan Oil & Gas Co.	18	2,090
McIlroy & Herring	6	570
S. D. McIlroy	4	300
S. D. and W. W. McIlroy	8	825
McIlroy Brothers et al	4	560
J. H. Middleton	4	150
Mudge Oil Co.	1	10
Murchison & Fain	2	250
Newby Oil Co.	2	50
New Domain Oil Co.	3	90
Pantex Oil Co. (Westex)	9	1,460
Phillips & Heywood	3	340
Panhandle Oil Co.	1	0
Paramount Oil Co.	1	0
J. R. Phillips (Blasdel)	1	0
J. R. Phillips et al	5	2,005
Phillips Pet. Co.	195	24,580
Prairie Oil & Gas and Phillips Pet. Co.	58	12,220
Plains Drilling Co.	1	0
Pure Oil Co.	3	460
Relief Oil Co.	4	410
Henry Riley	1	135
Riley & Holmes	2	210
Rock Island Oil Co.	1	0
Roxana Pet. Corp.	10	710
Ryan Pet. Corp.	4	310
Skelly Oil Co.	25	2,610
Skiatex Oil Co.	7	1,260
J. L. Smith	2	200
Smith & Barnum	2	60
Southwestern Oil & Dev. Co.	4	960
Spring Creek Oil Co.	4	450
Summit Oil Co.	3	440
Sunny Jim Oil Co.	5	250
Sunburst Oil Co.	2	295
Sunrise Oil Co.	1	0
J. A. Swindler & Son	1	0
The Texas Company	1	70
Tex-O Oil Co.	1	15
Travelers Oil Co.	3	325
Triangle Oil Co.	5	470
J. D. Ward et al	3	205
White Eagle Oil & Ref. Co.	25	1,420
J. O. Whittington	1	0
Total Hutchinson County	845	100,455
Average per well		120.4
Carson County		
Amarillo Oil Co.	1	0
American Ref. Co.	9	700
Champlin Ref. Co.	2	100
Empire Gas & Fuel Co.	2	95
Gates Oil Corp.	1	5
Gulf Prod. Co.	16	240
Magnolia Pet. Co.	1	250
Marland Oil Co.	20	1,400
Marsten Oil Co.	1	165
McMan Oil & Gas Co.	4	1,010
Nunn & McAuley	2	850
Parks et al	1	250
Prairie Oil & Gas Co.	1	675
Republic Prod. Co.	1	20
Roxana Pet. Corp.	8	1,120
W. W. Silk et al	3	70
Skelly Oil Co.	3	170
Southwest Oil & Dev. Co.	1	10
Sunny Jim Oil Co.	2	60
The Texas Company	13	370
Total Carson County	92	7,405
Average per well		79.6
Gray County		
Canyon Oil Co.	1	10
Empire Gas & Fuel Co.	3	40
Gulf Prod. Co.	12	780
Humble Oil & Ref. Co.	10	420
Magnolia Pet. Co.	19	450
McMan Oil & Gas Co.	10	775
Marland Oil Co.	1	15
Nabob Oil Co.	1	50
Osborne & Daniels	1	10
Phillips Pet. Co.	5	400
Prairie Oil & Gas and Atlantic & Shamrock	15	1,620
Pure Oil Co.	5	340
Roxana Pet. Corp.	1	35
Sun Oil Co.	3	110
The Texas Company	5	370
Wilcox-Pampa Oil Co.	18	2,140
Young et al	1	15
Total Gray County	111	7,580
Average per well		68.2
Moore County		
Cadman et al	1	0
Potter County		
Amarillo Oil Co.	1	25
Wheeler County		
Continental Oil Co.	3	220
Gibson Oil Corp.	6	650
Laycock et al	1	0
Magnolia Pet. Co.	2	560
Marland Oil Co.	1	435
Mid-Continent Pet. Corp.	1	0
Murchison & Fain	1	40
Mid-Kansas Oil & Gas Co.	2	320
Midwest Exploration Co.	2	5
World Oil Co.	1	50
The Texas Company	1	55
Total Wheeler County	21	2,335
Average per well		110.7
Grand total Panhandle	1,071	117,800
Average per well		112.8

CRUDE SITUATION DOMINATES MARKET

(Continued from Page 28)

prices on other products. As has been explained in these columns for several weeks, the price trend in practically all products is downward and, with the possible exception of lubricating oils, there is no indication that the bottom has been reached. Should crude prices be further reduced, this downward trend will no doubt be hastened. This obviously means that the refiners' only hope lies in obtaining relatively more for gasoline, the only product which is entering a season of maximum consumption.

Gasolines and Naphtha

The general market on gasolines on Tuesday of this week was practically the same as that of the previous week. However, an occasional shading of prices was reported, the explanation of the Oklahoma sellers generally being that the reduction was necessary to meet the competition of North Texas or some adjoining refining areas.

Most of the refiners were firm in asking 6½ to 6¾ cents for 58-60 U. S. Motor gasoline. Some of the cheaper material sold two weeks ago was for April delivery. A limited amount of this material in the hands of marketers made its appearance after the first of the month and in the case of the U. S. Motor grade was available under 6½ cents. The 60-62 grade was generally firm at 7 cents in Oklahoma, although there was little demand for this product or any of the other high gravity grades.

Several of the Oklahoma trade expressed the opinion during the past week that the demand for the 60-62, 400 will increase in the near future. The action of the Roxana Petroleum Corp. in making that grade standard at its own service stations was responsible for the predictions. With surplus of gasoline assured for the next few months at least and only a quarter or a half-cent differential existing between that grade and U. S. Motor, coupled with wide margins between the tank wagon and tank car prices, there is every inducement for the marketing fraternity to distribute the higher gravity gasoline. In this connection, it is also pointed out, the shift to 400 end point material will decrease the gasoline yields from crude and thus aid in curtailing the output. Unconfirmed reports heard during the past week were to the effect that other large distributors will shortly follow the lead of the Texas, Roxana and other companies which are retailing the 60-62, 400 end point gasoline.

No export orders of the 64-66, 375 grade were reported in Oklahoma during the past week. Some small orders were placed in North Texas. The product was quoted at 7¼ to 7½ cents in Oklahoma. The naphtha market was unchanged.

Kerosenes and Distillates

Despite the efforts being made to maintain at least firm prices on kerosene, the market on the 41-43 grade slipped a quarter of a cent during the past week. The demand was at least fair, according to reports from several buyers, but buyers at the same time had little difficulty in securing a quarter of a cent concession in the 41-43 grade. The 42-43 grade was firmer.

Distillates are off an additional half-cent. Clean-up purchases for the remainder of the season is the only business available to the sellers.

Fuel and Gas Oils

Gas oils continued their rapid decline and the 32-36 grade the first of this week was available from several sources at 2¾ cents. Little attention is now paid to grades. With no demand for cracking, the straight run stock is not bringing the usual premium prices. In fact, the cracked gas oil is probably in greater demand from the industrial users than the gas oil secured from the straight skimming operation.

All grades of fuel oils were reduced from 2½ to 5 cents a barrel during the week. The highest gravity grades are still above the gas oil price, a situation which reflects the abnormal price situation now existing in the Mid-Continent Field in regard to several products. Many refiners are sold up for the month on fuel oil and only limited quantities will be available in Oklahoma during April, regardless of the price trend. Several refiners reported more inquiries during the past week, a development which they believe due to the fact that the coal strike has actually materialized.

Natural Gasolines

The active buying which featured the natural gasoline market the early part of last week was sufficient to maintain firm prices over the week. Prices were firm on Monday and Tuesday of this week but additional buying will be necessary to maintain this situation through the week.

Wax

Buyers were offering as low as 2½ cents for wax during the past week. No purchases were reported at that figure. Several of the sellers are taken care of on contracts over the next three months at prices approximately 2 cents higher than the present market.

G. E. WHITWELL HEADS NEW SALES DEPARTMENT

Following the recent resignation of Merrill E. Skinner, commercial manager of the Duquesne Light Co., a subsidiary of the Philadelphia Co., Pittsburgh, Pa., a general sales department to include that of the light company, the commercial department of the Equitable Gas Co. and the Equitable Sales Co. was created and George E. Whitwell was appointed general sales manager, effective April 1. Mr. Skinner left to accept a similar position with the Mohawk and Hudson Power Corp., with headquarters at Albany, N. Y.

Mr. Whitwell comes of a family of public utility men of Washington, D. C. where he was born in 1892. He was graduated from Massachusetts Institute of Technology in 1915 and until June, 1918, became analytical and research chemist with the Anaconda Copper Mining Co., leaving that field to serve with the forces of Uncle Sam as a private in the photographic air service of the Army in France until April, 1919. In June, 1919, he joined the Washington state geological survey and in June, 1920, became research investigator of the Seattle Lighting Co.

George E. Whitwell

He taught chemical engineering for three years at the University of Washington jointly serving as consulting engineer for the Tacoma Gas & Fuel Co. and in October, 1922, became vice president of the Young-Whitwell Gas Process Co., formed by himself and D. J. Young, manager of the Tacoma concern, the two having developed a new back run carburetted water gas process, a development which is now used by 300 manufactured gas concerns in America and Europe.

In May, 1924, Mr. Whitwell became manager of the new business department of the Tacoma Gas & Fuel Co. and in May, 1925, became manager of the gas department of the Byllesby Engineering & Management Corp. In the fall of 1926, he became general manager of the Equitable Gas Co., which position he held until the creation of the new department which he now heads.

LA ROSA COMPLETIONS

Lago Oil & Transport Co. has completed No. 51 La Rosa in Venezuela, with estimated production of 1,500 bbls. daily through a 1-inch choke with closed in pressure of 650 pounds. No. 146 La Rosa has been completed, producing 4,000 bbls. daily of 26.2 gravity crude oil through 1-inch choke at pressure of 350 pounds.

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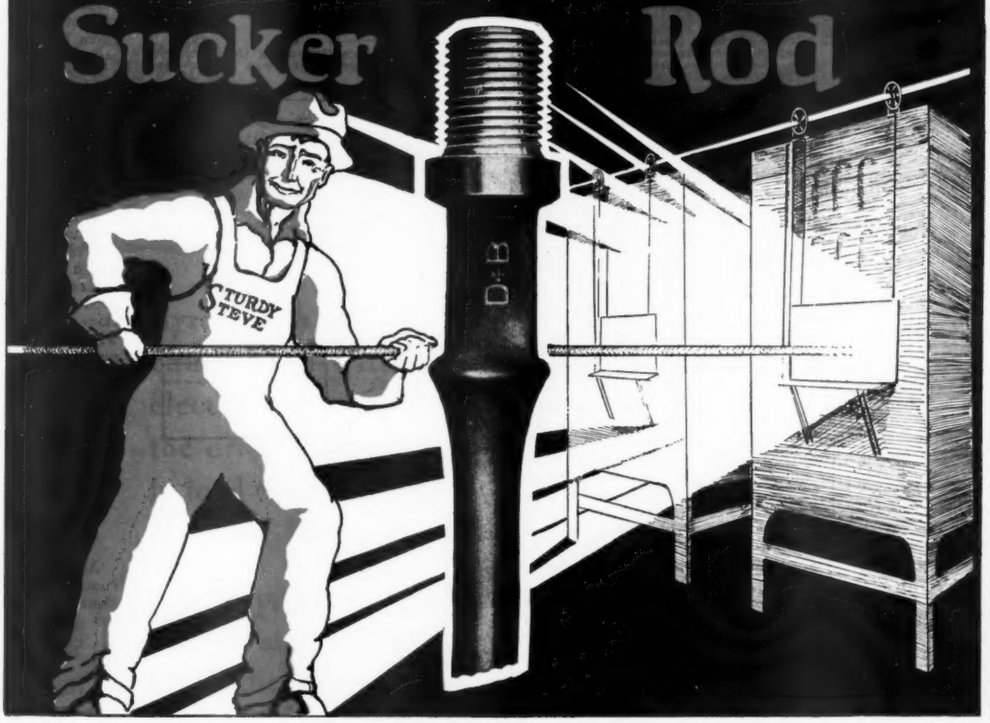

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Amyl Acetate from Natural Gasoline

With Suitable Rectification Towers Pentane Hydrocarbons May Be Removed and Used for Synthesis of Product

By George T. Koch and George A. Burrell*

Gasoline obtained from natural gas contains a considerable amount of the pentane hydrocarbons. These may be separated from the natural gasoline in suitable rectification towers and be used for the synthesis of amyl acetate. An outline of the research on this problem, including the principal difficulties encountered and how they were overcome, and a few cost figures are given herein.

The process for the synthesis of amyl acetate from pentane may be briefly outlined as follows:

(1) Fractionation of pentane from natural gasoline (no reactions).

(2) Treatment of pentane with chlorine to obtain chloropentane (amyl chloride) and hydrochloric acid, according to the reaction,

$$C_5H_{12} + Cl_2 \rightarrow C_5H_{11}Cl + HCl$$

(3) Esterification of amyl chloride to amyl acetate with sodium acetate, according to the reaction,

$$C_5H_{11}Cl + Na(C_2H_3O_2) \rightarrow C_5H_{11}(C_2H_3O_2) + NaCl$$

Besides these three major processes there are a number of minor ones, such as neutralization, fractionation, and rectification.

In describing the process in this paper all temperatures, pressures, or gravities mentioned are the ones which, up to the present time, have given the best results. Further operation and research will no doubt show instances where these values should be changed, resulting in greater efficiencies and economies.

Fractionation of Gasoline for Recovery of Pentane

A standard copper-lined, steam-jacketed, continuous rectifying still is used. The fraction which distils over between 25 degrees and 40 degrees Centigrade is the one most suitable for chlorination. This is essentially pentane, with some butane and hexane. The specific gravity of this fraction averages 0.625 at 15.5 degrees Centigrade. The recoveries vary according to the gravity of the gasoline being fractionated, being about 50 per cent pentane with a gasoline having an initial gravity of 84 degrees Baume.

Chlorination

A number of previous investigators, in attempting to treat hydrocarbons with chlorine, carried out this reaction in the vapor phase, with varying results. The writers' first experiments were also in the vapor phase, but it was soon found that this method was difficult to control, the results were uncertain, and large amounts of di- and trichlor derivatives were formed. Furthermore, it was dangerous, for if the concentration of chlorine became too high, the reaction, being exothermic, proceeded so rapidly and violently that an explosion ensued, resulting in cracking the hydrocarbon vapors and the deposition of free carbon. Vapor-phase chlorination was therefore abandoned and attention turned to liquid-phase chlorination.

Apparatus—After considerable experimentation a method and apparatus (Figure 1) were devised by which chlorination could be carried on at any desired rate and to any extent up to a certain limit without danger of explosion or formation of the di- or trichlor derivatives.[1] The apparatus consists of lead-free glass tube, fitted at the ends with reducers and screens. Inside the large glass tube is a smaller tube, also of lead-free glass, extending approximately one-half of the vertical length of the large tube and supported a slight distance off the bottom screen. A small nozzle projects through the bottom screen and is directed into the end of the small tube. The lower end of the smaller tube is spread out in a funnel shape. Activated carbon, silica gel, or similar porous substances having large gas-absorption properties are used in connection with this apparatus as catalyst or chlorine carriers. Activated carbon of 12- to 15-minute chloropicrin test gives the best results. (Table I) The catalyst is placed on the bottom screen in the large tube to the depth of about 3 inches.

TABLE 1.—COMPARATIVE CHLORINATIONS

Catalyst Used	Duration of Chlorination Minutes	Chloro-Pentane Recovered Per cent	Conversion to Amyl Chloride Per cent
None	45	53	4.3
50-minute carbon (coconut shell)	45	58	6.3
15-minute carbon (Batchite)	45	43	16.6
12-minute carbon (Batchite)	45	47	19.2

Note:—These represent laboratory tests. In actual plant practice, using the 12-minute carbon, the average chloropentane recovered in over 3,000 chlorinations was 78 per cent, and the average amyl chloride conversion 19 per cent.

Operation—The pentane to be treated is run into the large tube until it is about three-fourths full. Chlorine gas is then admitted into the container through the small nozzle which is placed concentrically, with respect to the funnel-shaped mouth of the smaller tube or percolator. The rate of flow of chlorine gas is controlled from a master control panel similar to the chlorine apparatus used in municipal water plants. The chlorine gas emerging from the nozzle passes through the catalyzing material and up through the percolator tube, carrying a portion of the catalyzing material with it. While flowing up through the percolator, the catalyzing material and chlorine are in intimate contact in the presence of a small quantity of the liquid. Large amounts of the chlorine are absorbed by the catalyst. Upon spouting from the top of the percolator, the catalyst enters the reaction zone, where it comes in contact with a large quantity of pentane. The chlorine is dropped or displaced from the carbon at this point and enters into reaction with the pentane. The reaction zone is exposed to actinic light emanating from a battery of mercury vapor lamps suitably placed. The particles of carbon, denuded of their chlorine, fall back to the bottom of the large tube in the space between it and the percolator, are again picked up by the chlorine jet, forced through the percolator, and then used over and over.

The products of the reaction are hydrogen chloride and the chlorinated derivatives of the hydrocarbon being treated. Any vapors given off during the course of reaction pass from the reaction zone to a refrigerated condenser and are refluxed back into the tube. The hydrochloric acid vapors pass through the condensers into a washer, where they are absorbed to form a weak solution of hydrochloric acid.

In order to keep this formation of di- and trichloride derivatives at a minimum, chlorination must be stopped when the chlorinated derivatives are about 20 to 25 per cent of the total volume of hydrocarbons being treated. Using the apparatus described above, the reaction can be carried to this point in about an hour to an hour and a quarter. In actual plant practice, recoveries of chloropentane were 78 per cent, with an average conversion to amyl chloride of about 19 per cent.

Treatment of Chlorohydrocarbons and Recovery of Amyl Chloride

The chlorinated hydrocarbons coming from the chlorinators are very acid and must be washed and neutralized before being fractionated to recover the amyl chloride. This is done in a covered tank equipped with agitators. A 10 to 20 per cent caustic solution is agitated with the chlorohydrocarbons for about 20 minutes. This is allowed to settle and then drawn off the bottom of the washer. The chlorohydrocarbon is then further washed with pure water two or three times for 10- or 15-minute periods. The washed hydrocarbon is then run into the fractioning still. The first fraction coming over, consisting of untreated pentane, is run back into the pentane storage for further chlorination. The amyl chloride cut is the fraction coming over between 90 degrees and 110 degrees Centigrade. This fraction amounts roughly to 25 per cent of the original liquid, depending upon the conversion during chlorination, and is approximately 80 per cent pure amyl chloride. The residue amounts to about 5 per cent and consists of the di- and trichlor derivatives. The amyl chloride recovered is run back into the washer and rewashed with pure water before further treatment.

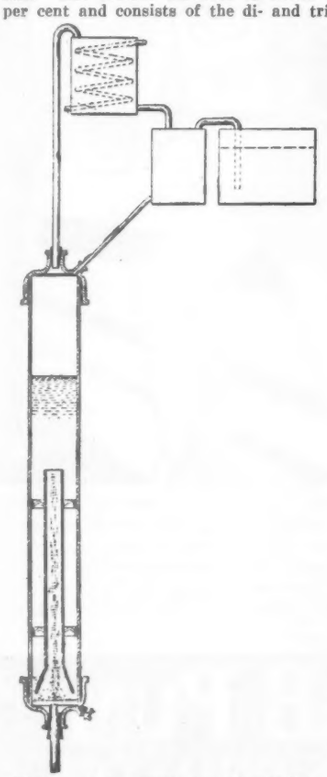


Figure 1:—Apparatus for Chlorination of Pentane.

Conversion of Amyl Chloride to Amyl Acetate

Numerous difficulties were encountered in developing this step of the process, chief of which was the tendency of the amyl chloride to decompose to form amylene and hydrochloric acid vapors according to the reaction,

$$C_5H_{11}Cl \rightarrow C_5H_{10} + HCl$$

This tendency was finally overcome or reduced to a minimum by the elimination of all moisture from the ingredients used in the reaction, and the introduction of charcoal in the reaction as a catalyst.[2] Identical samples of amyl chloride and sodium acetate, except that in one case carbon was present, were boiled and refluxed for 8 hours. In the test without carbon the amyl chloride was 70 per cent decomposed to amylene, while in the test using carbon decomposition amounted to only 18 per cent. Table II shows the effect of carbon on amyl acetate yield.

Esterification—The amyl chloride is charged into a 100- or 200-gallon steel-jacketed, agitator-equipped autoclave, along with 65 to 75 parts by weight of fused and ground (100-mesh) sodium acetate and 1 to 2 parts by weight of solvent. Heat is applied to the autoclave by circulating hot oil through the jacket. A temperature of 499 degrees to 450 degrees Fahrenheit, with a corresponding pressure of 200 to 250 pounds gauge, is maintained on the apparatus. The time required to complete an esterification is about 8 hours at maximum heat; a complete cycle, including charging, esterifying, and discharging, requiring about 12 hours. The start of the reaction is manifested by a gradual drop in pressure and completion of the reaction is evidenced by a decided drop in pressure which is only slightly affected by increased temperature. This esterified product is distilled directly from the autoclave through a condenser into a washer, where it is washed and neutralized with pure water of sodium carbonate.

Table II—Comparative Yields of Amyl Acetate with and without Activated Carbon

Run	Duration of run Hours	Minutes	Amyl Acetate Yield Per cent
	No Charcoal		
1	7		37.16
2	6	40	29.15
3	7	30	45.16
4	7	20	35.42
	Charcoal Used		
5	7	30	58.16
6	7	15	83.23
7	8		78.34

Recovery of Amyl Acetate

After washing, the esterified liquid is run into a fractionating still and fractionated into three fractions as follows:

Cut	Temp. °C	Fraction
1	I. b. p. to 82	Amylenes, pentanes, etc.
2	82 to 120	Unconverted amyl chloride, some amyl, butyl, and perhaps propyl acetate*
3	120 to 175	Amyl acetate, 99 to 100 per cent.

* This cut is used as starting solvent in charging the autoclave; it might also be used as a cheap grade of solvent.

The amyl acetate recovered in cut 3 is a technical grade product but can be purified by redistillation and washing. Without purification it shows the following physical properties:

Specific gravity at 15.5°C.		0.88
Color		Light yellow
Moisture		None
Acidity		0.196 per cent acetic acid.
Dist'n	Initial boiling Pt.	92° C.
	Final boiling Pt.	200° C.
	Residue	None

These specifications compare favorably with technical grades of cold-process amyl acetate purchased on the open market.

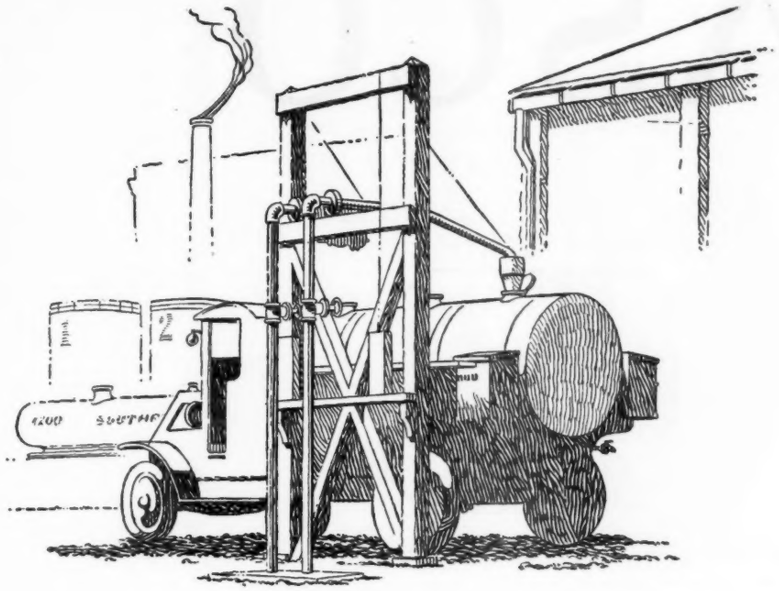
Methods of Analysis of Amyl Acetate

Some difficulty was experienced in finding a method suitable for the estimation of the per cent of amyl acetate formed in the esterification of the chlorohydrocarbons. Several methods were tried, saponification before and after esterification, difference in chloride content before and after esterification, and iodine absorption. Saponification with alcoholic potassium hydroxide and titration with standard hydrochloric acid to determine the percentage of amyl acetate gave widely varying results, owing to the action of the alcoholic potassium hydroxide on the hydrocarbon, producing

* Work was begun on the problem discussed in this article at the laboratories of The Ohio Fuel Supply Co., Homer, Ohio, by G. A. Burrell. The work was done for and the patents are the property of The Ohio Fuel Supply Co. Reprinted from Industrial and Engineering Chemistry.

[1] This apparatus is covered under United States Patents 1,380,067 (May 31, 1921), and 1,432,761 (May 4, 1920).

[2] United States Patent 1,374,666 (April 12, 1921).



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amyl alcohol. The results obtained varied with the duration of the saponification.

The method of Drogin and Rosanoff[3] for the detection and determination of the halogens in organic compounds was tried, but owing to the presence of di- and trichlorides and some butyl and heptyl chloride, considerable error was introduced by figuring chloride content to amyl chloride disregarding its homologs. The same difficulty was experienced in getting iodine absorption values. Iodine was absorbed not only by the olefins, but by other substances, consequently the results obtained were false.

As a result of these difficulties a method was tried out which had for a basis the solubility of amyl acetate in sulphuric acid and the relative insolubility of the chlorohydrocarbons and saturated ring compounds of the polymethylene series and paraffin hydrocarbons[4].

Table III—Synthetic Mixture of Chloropentane and Amyl Acetate

Amyl Acetate Per cent	Chloropentane Per cent	Amyl Acetate By Absorption Test Per cent
100	0	100.0
90	10	96.4
80	20	80.0
70	30	70.2
60	40	59.8
50	50	51.4
40	60	38.8
30	70	31.0
20	80	21.0
10	90	9.2
0	100	0.0

Two hundred cubic centimeters of the esterified product from the autoclave were placed in a standard Bureau of Mines distillation apparatus and distilled slowly, about 2 drops a second. Cuts were made of each 10 per cent fraction, temperature readings being made at the beginning, middle, and end of each cut. Each cut was kept separately in tightly stoppered bottles to prevent volatilization. Upon the completion of the distillation, a sulphuric acid absorption test was run on each cut in a 10-cc. glass-stoppered graduate, as follows: By means of a pipet 5 cc. of C. P. 1.84 gravity sulphuric acid were introduced into the graduate, and 5 cc. of the cut being tested were introduced by means of another pipet, care being taken to avoid mixing the two layers until the stopper was inserted in the graduate. After inserting the stopper, the content of the cylinder was violently shaken for 5 minutes. After settling 15 minutes, the total volume was read and the point of separation of the layers noted.

The absorption per cent is calculated as shown in the following example: For the purpose of a test example, 50 per cent Merck's pure amyl acetate and 50 per cent chloropentane were mixed together and an absorption run on the mixture.

	Cc
Let A = Acid layer before agitation	5
B = Sample layer before agitation	5
C = Total volume before agitation	10
D = Acid layer after agitation	7.54
E = Total volume after agitation	9.77
F = Total volume minus acid layer	2.23

F = volume of sample unabsorbed
Volume of sample used = 5 cc. — F = absorbed oil; in this case, 2.77 cc. or 55.4 per cent amyl acetate.

It was found that, although in 15

[3] J. Am. Chem. Soc., 38,711 (1916).
[4] United States Patent 1,278,198.

Cost Figures
Apparatus and Buildings
(Basis 500 gallons amyl acetate per 24 hours.)

	Approximate Cost		
Buildings			
Still house	$4,000		
Chlorination building	2,000		
Autoclave building	1,500		
Power house	1,000		
Refrigeration plant	1,000		
Warehouse	1,000		
Office and laboratory	1,500		
Apparatus			
Gasoline Fractionation:			
1 Pentane still complete with condensers, refluxes, etc.	$5,000		
2 Gasoline tanks (5,000 gallons)	2,500		
2 Pentane tanks (2,000 gallons)	1,200		
Chlorination:			
30 Chlorination units complete with racks, condensers, etc.	$1,500		
1 Chlorination control panel complete	2,500		
1 HCl scrubber	100		
1 Mechanical stirred washer	750		
2 Tanks (1,000 gallons)	900		
Lead piping and miscellaneous valves and piping	1,000		
Recovery of Amyl Chloride:			
1 Enamel lines still complete with condensers, etc.	$2,500		
Miscellaneous piping	150		
1 Tank (1,000 gallons)	450		
Esterification:			
3 Autoclaves	$7,500		
1 Condenser	250		
1 Mechanically stirred washer	750		
1 400,000 B.t.u. oil heater	6,000		
1 Sodium acetate fusing pan	200		
1 Sodium acetate grinder	750		
1 Sodium acetate cyclone	300		
1 Tank and support	450		
Miscellaneous piping	300		
Recovery of Amyl Acetate:			
1 Enamel-lined still complete with condensers, etc.	$2,500		
2 Tanks (1,000 gallons)	900		
Auxiliary Plant			
2 Boilers	$2,000		
Electric equipment (motors, etc.)	3,600		
Miscellaneous			
Warehouse equipment	$ 300		
Laboratory	1,000		
Office	300		
Total		$57,650	
Add labor, piping, etc.		50,000	$107,650
Contingent			20,000
Total for apparatus and buildings			127,650

Production Data

High-test gasoline		3,000 gallons
Recoveries:		
Pentane, 40 per cent	1,200 gallons	
Residue, 30 per cent	900 gallons	2,100 gallons
Loss, 30 per cent		900 gallons

Chlorination of Pentane:
1,200 gallons pentane
75 per cent recovery = 900 gallons
900 gallons chloropentane
25 per cent recovery of 80 per cent amyl chloride = 225 gallons

By rechlorination of the untreated pentanes distilled off when separating the amyl chloride from the chloropentane, the ultimate yield of amyl chloride is approximately 40 per cent of the original pentane treated—in this case, 480 gallons.

Esterification:
480 gallons 80 per cent amyl chloride

Molecular weight amyl chloride	106.57
Molecular weight amyl acetate	130.14
Specific gravity amyl chloride	0.8834
Specific gravity amyl acetate	0.8659
106.57 pounds = 14.5 gallons	
130.40 pounds = 18 gallons	
Theoretical recovery = 125 per cent	
125 per recovery = 600 gallons	

80 per cent conversion to amyl acetate = 480 gallons

1,200 gallons pentane at 20 cents	$240.00	
2,000 pounds chlorine at 6 cents	120.00	
3,000 pounds sodium acetate at 5 cents	150.00	
Depreciation, 10 per cent	26.40	
Power and fuel	30.00	
Labor	75.00	
Total	$641.40	
Selling, packing, insurance, contingent and overhead	75.00	
Total cost of 480 gallons	$716.40	
Total cost per gallon		$1.50
Selling price of amyl acetate per gallon		1.75
Profit per gallon		$0.25

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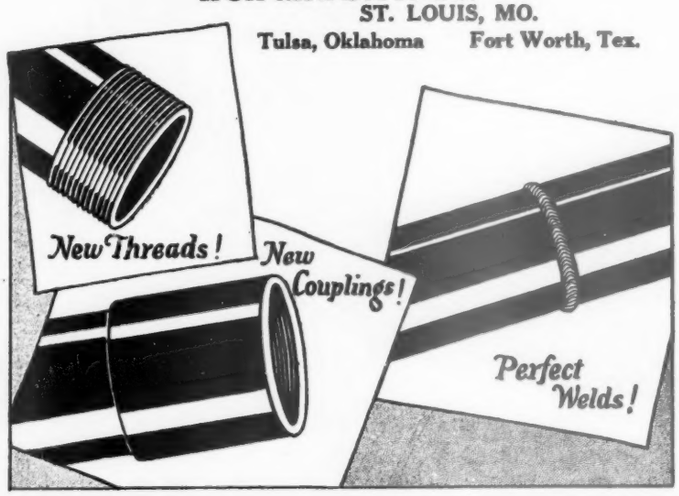

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minutes the separation is almost complete, on standing 24 hours about 0.1 cc. more comes out of solution. The following formula was derived to take care of this error:

Corrected absorption = per cent at end of 15 minutes — (3 + per cent found × 0.02); in this case
55.4 — [3 + (55.4 × 0.02)] =
55.4 — 4.11 = 51.3 per cent, which is within 1.3 per cent of the actual amyl acetate present.

In running a complete analysis, absorptions are run on each of the 10 per cent cuts of the esterified product and by plotting the corrected absorption per cent of each cut against the middle boiling point of each cut, the per cent of amyl acetate can be determined. The widest variation found on synthetic mixtures of amylenes, chlorohydrocarbons, and amyl acetate was 2 per cent of the correct value. (Table III).

A semicommercial plant was built from which the foregoing figures were deduced. Owing, however, to the introduction to the trade of other solvents and particularly those coming from the olefins of cracked gases, larger scale operations have not been attempted yet. It is known, however, that with more work on the process, and a larger operation than that presented, costs can be very materially reduced so that the process still has attractive possibilities.

Acknowledgement

Various individuals have contributed material to the solution of this problem, among them P. M. Biddison, G. G. Oberfell, H. T. Boyd, and C. L. Voress.

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE FIRST REPORTS

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Marland Oil Co.'s No. 1 J. W. McConnell, 330 feet north and west of SE cor. of west 160 acres of east 240 acres of the N half of Section 67, Block 3, I. & G. N. Survey. J. T. Parks and others' No. 1 J. W. McConnell, 990 feet south and 330 feet west of NE cor. of the W half of NW of the same section.

Gray County

Saulsburg & Reynolds' No. 1 Huselby, 990 feet south and 330 feet west of NE cor. of SW, Section 55, Block 25, H. & G. N. Survey.

Hutchinson County

Dumas and others' No. 1 Johnson Brothers, 330 feet south and 180 feet west of NE cor. of the E half of SE SW, Section 28, Block Y. Mudge Oil Co.'s No. 2 E. Cockrell, 330 feet south and east of NW cor. of the N half NE, Section 3, Block B-3, D. & S. E. Survey. Phillips Petroleum Co.'s No. 7 J. J. Perkins-George, 990 feet south and 995 feet east of NW cor., Section 47, H. & T. C. Survey; No. 9 J. A. Whittenburg-Tinnie, 2,950 feet north and 995 feet west of SE cor. of south 480 acres of Section 71, Block 46, same survey. Prairie Oil & Gas Co. and others' No. 68 Johnson Brothers-A, 330 feet north and west of SE cor. NE SW, Section 28, Block Y. Riley and others' No. 1 E. Cockrell, 185 feet north and 330 feet east of SW cor. of south 20 acres of north 40 acres of Section 1, Block B-3, D. & S. E. Survey. Summit Oil Co.'s No. 4 J. A. Whittenberg, 330 feet south and east of NW cor. SE SW, Section 13, Block Y.

Wheeler County

Mid-Kansas Oil & Gas Co.'s No. 3 W. E. Curlee, 330 feet north and 990 feet west of SE cor. SW, Section 41, Block 24, H. & G. N. Survey. Watchhorn Oil & Gas Co.'s No. 1 Binkley & Cain, center of the NE NE, Section 19, Block 24, same survey.

NORTH CENTRAL & WEST TEXAS First Reports

Archer County

Arco Oil Co. & W. C. Young's No. 1 J. R. Parkey, 1,500 feet north and 150 feet west of SE cor. of Section 1, S. P. R. R. Survey, A-419 L. T. Burns' No. 11 J. H. Turbeville-D, 150 feet south and 1,050 feet east of NW cor. of his 50-acre lease "D" out of R. Carson Survey, No. 142; No. 2 J. H. Turbeville-E, 150 feet north and 450 feet east of SW cor. of east 75 acres of south 150 acres of Section 124, Club Ranch Subdivision; No. 3, 150 feet north and 1,050 feet east of SW cor. of east 7,500 acres of south 150 acres of the same section; No. 4, 150 feet north and east of SW cor. of east 75 acres of south 150 acres of the same section; No. 5, 450 feet north and 750 feet east of SW cor. of east 75 acres of south 150 acres of the same section. E. B. Lawson's No. 7 L. F. Wilson, 490 feet north and 485 feet west of SE cor. of Lot 7, Section 23, A. T. N. C. L. Survey. B. S. & B. Oil Co.'s No. 1 J. B. Wilson Estate, 150 feet north and east of SW cor. of Lot 2, Section 2, Wilson Subdivision, Dallas County School Land, A-113. Golding, Cochran & Cline's No. 16 H. O. Prideaux, 150 feet north and west of SE cor. of their 130-acre lease out of J. Dorsey Survey, A-122. Ted Harris and others' No. 2 L. H. Farmer, 810 feet north and 510 feet east of SW cor. of W. C. Winters Survey, A-663. Kentucky Oil Co. & Roxana Petroleum Corp.'s No. 1 R. N. Chancellor, 150 feet north and west of SE cor. of west 20 acres of north 40 acres of W. A. Rucker Survey, A-1,110. Roxana Petroleum Corp.'s No. 17 Abercrombie & Taylor-A, 150 feet south and 1,030 feet west of NE cor. of their 70-acre lease out of SW, Section 2, S. P. R. R. Survey, A-1,281. B. T. Tackett and others' No. 1 H. O. Prideaux, 150 feet south and east of NW cor. of H. O. Prideaux's 284-acre tract out of A. Rohus Survey, A-1,126. The Texas Company's No. 3 J. A. Love, 570 feet south and 450 feet east of NW cor. of Section 2, S. P. R. R. Survey, A-815. Western Oil Corp.'s No. 1 H. O. Prideaux, 150 feet north and east of SW cor. of A. McMullen Survey, A-286. L. Wilson & Russell's No. 7 Prideaux, 150 feet south and 1,985 feet east of NW cor. of H. O. Prideaux's 345-acre tract out of A. Rohus Survey, A-1,126; No. 8, 150 feet south and 2,375 feet east of NW cor. of H. O. Prideaux's 245-acre tract out of the same survey, being 150 feet south and west of NE cor. of their 55-acre lease.

Borden County

Stivers and others' No. 1 Snodgrass, C NW, Section 475, Block 97, H. & T. C. Survey.

Brown County

C. F. Corzelius and others' No. 1 H. J. Marr, 1,095 feet south and 650 feet west of NE cor. of H. F. Tuggle Survey, No. 62. Forsythe and others' No. 2 J. W. Shore, 150 feet south and west of NE cor. of Charles S. Betts Survey, No. 625; No. 3, 150 feet south and 450 feet west of NE cor. of the same survey. T. H. Gray and others' No. 1 J. E. Brewer, 150 feet north and east of SW cor. of E. Brooks Survey, A-1,697. Humble Oil & Refining Co.'s No. 10 A. W. Armstrong, 450 feet north and 900 feet west of SE cor. of Section 1, Juan Delgado Survey, No. 785; No. 8 J. T. Hodnett-B, 450 feet north and east of SW cor. of their 100-acre lease "B" out of Mrs. J. M. Harris Survey, No. 785. Kane Production Co.'s No. 2 Roy Hickman, 150 feet north and 5,270 feet west of SE cor. of T. Benson Survey, No. 785, being 150 feet north and west of SE cor. of their 164-acre lease. McKanna and others' No. 2 J. W. Shore, 15 feet south and 465 feet west of NE cor. of south 70 acres of east 80 acres of J. W. Shore's 320-acre tract out of Charles S. Betts Survey, No. 625; No. 3, 285 feet south and 150 feet west of NE cor. of south 70 acres of east 80 acres of J. W. Shore's same 320-acre tract. Phillips Petroleum Co.'s No. 4 Roy Hickman, 2,785 feet north and 3,865 feet west of SE cor. of Thomas Benson Survey, No. 783, being 150 feet north and 750 feet west of SE cor. of their lease; No. 5, 2,785 feet north and 4,165 feet west of SE cor. of the same survey. Root and others' No. 3 W. N. Pugh, 150 feet north and west of SE cor. of C. J. Pugh Survey, A-761. The Texas Company's No. 2 Hamp Byler, 150 feet north and 1,595 feet east of SW cor. of

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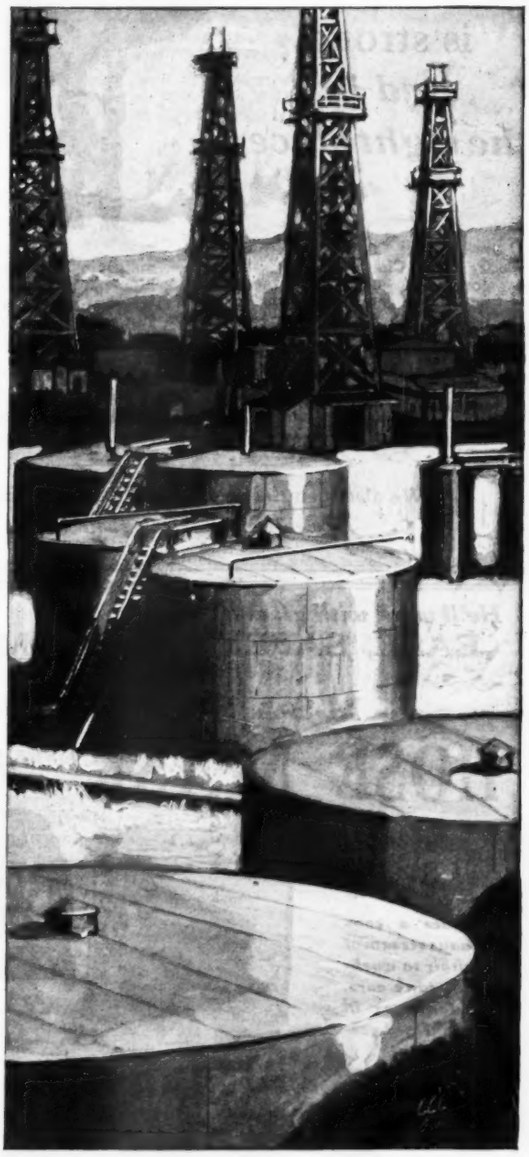

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(82)

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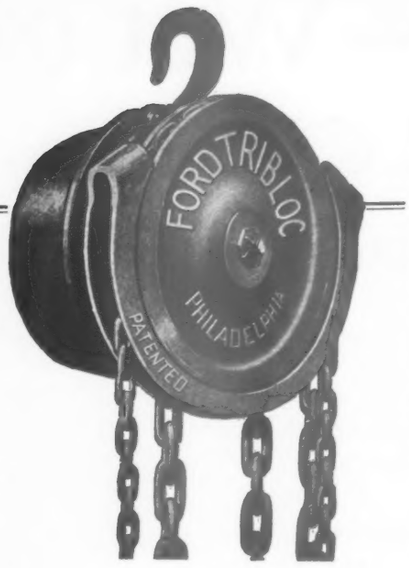

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H. Byler's 260-acre tract out of T. & N. O. Survey, No. 45; No. 36 Mrs. R. M. Lowe, 1,205 feet south and 1,705 feet east of NW cor. of their 320-acre lease out of G. Stubblefield Survey, No. 622; No. 37, 150 feet north and 450 feet east of SW cor. of the same survey; No. 38, 450 feet north and 150 feet east of SW cor. of the same survey; No. 39, 1,165 feet south and 2,110 feet east of NW cor. of their 320 acre lease out of the same survey. Wentz Oil Corp.'s No. 9 J. W. Shore, 450 feet south and 150 feet west of NE cor. of west 240 acres of J. W. Shore's 320-acre tract of Charles S. Betts Survey, No. 625. Peck, Hendricks and others' No. 1 Mrs. Sallie A. Capps, 2,600 feet southwest of southwest line of W. I. Newton's 65-acre tract and 450 feet southeast of northwest line of Francis Hunt Survey, No. 18 and located on Mrs. Sallie A. Capps' 420-acre tract. M. L. Richards' No. 1 S. C. Sheffield, 150 feet north and east of SW cor. of S. C. Sheffield's 75-acre tract out of B. Humphreys Survey, No. 98. C. H. Shoup Jr.'s No. 1 Dick Ratcliff, 150 feet north and east of SW cor. of Dick Ratliff's 160-acre tract out of Lot 32, A. D. Neill Survey, A-719.

Callahan County

George H. Loweree's No. 1 J. C. Cook, 150 feet south and west of NE cor. of south 80 acres of J. C. Cook's 160-acre tract out of Section 4, Block 5, S. P. R. R. Survey.

Clay County

Lone Star Gas Co.'s No. 14 W. L. Miller, 900 feet south and 200 feet west of NE cor. of SW, Section 60, Parker County School Land, A-274.

Coleman County

C. F. Browning's No. 1 C. J. Bowden, 150 feet south and 1,200 feet east of NW cor. of the E half of Bonds & Sanders Survey, No. 89. Monroe Production Co.'s No. 1 Mrs. G. S. Caton, 2,215 feet south and 1,570 feet east of NW cor. of Mrs. G. S. Caton's tract out of Wharton County School Land. H. F. Wilcox Oil Co.'s No. 1 W. L. Pugh, 150 feet north and east of SW cor. of W. F. Williams Survey, No. 145.

Concho County

Mullins, Davis & Davenport's No. 1 William Hughes, center of Section 6, Cort. 3,936, F. 42,055.

Cooke County

American Refining Co.'s No. 11 J. A. Dennis, 1,050 feet north and 150 feet east of SW cor. of their 80-acre lease of the N half of T. J. Moss Survey, A-736.

Crane County

Tidal Oil Co.'s No. 2 University Land-H, 330 feet north and east of SW cor. of NE, Section 38, Block 30, University Land.

Denton County

C. L. Harty and others' No. 1 Boner & Phillps, 2,640 feet north and 1,390 feet west of SE cor. of Sylvester Williams Survey.

Eastland County

Hoffman & Page's No. 2 J. Lyerla, 1,800 feet south and 150 feet east of NW cor. of Section 25, Block 2, H. & T. C. Survey. Mook-Texas Oil Co.'s No. 3 Mrs. Minnie Sibley, 200 feet north and 600 feet east of SW cor. of Lot 8, William Van Norman Survey. Empire Gas & Fuel Co.'s No. 1 J. A. Bishop, 165 feet north and 345 feet west of SE cor. of the W half of SW, Section 64, Lavaco County School Land.

Grayson County

Richardson Brothers' No. 1 P. L. Taylor, 350 feet north and 1,100 feet east of the most southerly SW cor. of James McKinney Survey.

Howard County

Briston & Merrick's No. 2 A. J. Hooks, 200 feet south and 2,440 feet east of NW cor. of Section 140, Block 29, W. & N. W. Survey. Magnolia Petroleum Co.'s No. 3 Sarah Hyman, 1,650 feet north and 2,310 feet east of SW cor. of Section 115, Block 29, same survey. Marland Oil Co.'s No. 8 Otis Chalk-A, 250 feet north and 1,490 feet east of SW cor. of Section 95, Block 29, same survey. Marland-Zoch's No. 1 Cuitar Trust Estate, 2,560 feet north and 1,325 feet east of SW cor. of Section 4, Bauer & Cockrell Survey.

Jeff Davis County

Mid-Kansas Oil & Gas Co.'s No. 1 Smith & Taylor, 2,750 feet south and 3,750 feet east of NW cor. of Section 33, Block 194, G. C. & S. F. Survey, being 250 feet north and west of middle of SE cor.; No. 2, 2,215 feet south and 3,750 feet east of NW cor. of Section 33, Block 194, of the same survey, being 785 feet north and 250 feet west of middle SE cor.; No. 3, 1,680 feet south and 3,750 feet east of NW cor. of Section 33, Block 194, same survey, being 1,320 feet north and 250 feet west of the middle SE cor.; No. 4 I. G. Yates, 250 feet south and 785 feet north of SW cor. of Section 61, Block 1, I. & G. N. Survey, and located in I. G. Yates Survey, A-8,195; No. 1 I. G. Yates, Acct. 5, 250 feet north and east of SW cor. of Section 60, Block 1, I. & G. N. Survey; No. 2 I. G. Yates, Acct. 3, 250 feet north and 1,035 feet east of SW cor. of the same section.

Loving County

Kingwood Oil Co.'s No. 1 J. O. Moore, C NE, Section 2, Block G-25, Republic School Land.

Mitchell County

The California Co.'s No. 4 J. D. Petitfils, 330 feet south and 2,310 feet west of NE cor., Section 14, Block 28, Tp-1-N, T. & P. Survey.

Montague County

Arco Oil Co.'s No. 5 N. J. Howard and others, 150 feet north and west of SE cor. of their 40-acre lease out of J. Chambliss Survey, A-123. E. P. Cullum's No. 1 N. H. Howard and others, 1,550 feet south and 2,250 feet west of NE cor. of J. Chambliss Survey, A-123, being 150 feet south and 125 feet east of NW cor. of his 4-acre lease. Lesh & McCall's No. 1 R. W. Cunningham, 150 feet south and 3,100 feet west of NE cor. of C. Bayne Survey, A-15, being 150 feet south and west of NE cor. of their 19-acre lease. E. L. Smith Oil Co.'s No. 6 J. W. Maddox, 150 feet south and 750 feet east of NW cor. of their 40-acre lease out of C. W. Thompson Survey, A-741. The Texas Company's No. 10 J. W. Maddox-D, 250 feet north and 1,125 feet east of SW cor. of their 80-acre "D" lease, Lots 11 and 12, and located in S. H. Arnold Survey, A-5, being 300 feet east of No. 9; No. 11, 150 feet south and 1,275 feet east of NW cor. of their 80-acre lease out of Lots 11 and 12 and located in C. W. Thompson Survey, A-741, being 275 feet east of No. 8.

Nolan County

Phillips Petroleum Co.'s No. 1 H. G. Scott, 330 feet north and west of SE cor. NE, Section 58, Block 21, T. & P. Survey.

Pecos County

Texon Oil & Land Co. and Marland Oil Co.'s No. 1 Blakesley, 330 feet north and east of SW cor. of Section 90, Block 11, H. & G. N. Survey.

Reeves County

The Exploration Co.'s No. 1 A. A. Kinney, 5 feet south and 1,500 feet west of NE cor. of Section 26, Block C-18, Public School Land.

Shackelford County

Albany Oil Co.'s No. 3 W. B. Reynolds, 1,350 feet south and 150 feet east of NW cor. NE, Section 24, Block 11, T. & P. Survey. W. S. Duty's No. 1 J. F. Dyer, 150 feet south and west of NE cor. of the W half of Section 85, Block 12, same survey. H. Gwinnup and others' No 1 W. H. Green 660 feet south and west of NE cor. of SE NW, Section 62, Block 12, same survey. Magnolia Petroleum Co.'s No. 1 J. F. Dyer, 150 feet north and west of SE cor. SW SE, Section 84, Block 12, same survey. Humble Oil & Refining Co.'s No. 19 W. I. Cook, 150 feet south and 1,700 feet west of NE cor. of the E half SW, Section 84, Block 10, same survey; No. 1 G. R. Davis, 2,840 feet north and 2,440 feet east SW cor. of Section 7, Block 13, same survey; No. 3 B. A. King, 150 feet south and 1,320 feet east NW cor. NW, Section 216, Block 10, E. T. R. R. Survey. Milham Corp.'s No. 6 J. H. Moore, 300 feet south and 630 feet west NE cor. SW, Section 1,561, T. E. & L. Survey; No. 7, 630 feet south and 300 feet west of NE cor. SW of the same section. C. C. Cuthier's No. 1 J. M. Isenhower, 4,305 feet south and 3,020 feet east of NW cor. of N. R. Brister Survey. Phillips Petroleum Co.'s No. 4 D. C. Brazell, 1,000 feet south and 1,500 feet west of NE cor. of the S half of Section 51, Blind Asylum Land. Roeser & Pendleton's No. 2 W. D. Reynolds, 660 feet south and east of NW cor. NW NE, Section 25 Block 11, T. & P. Survey. Tannehill

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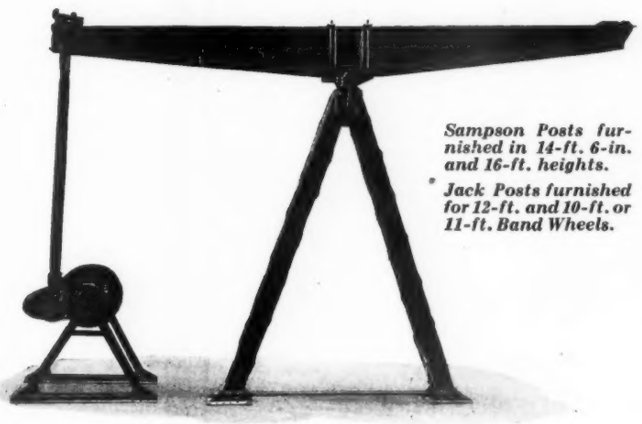

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Oil Co.'s No. 5 J. B. Matthews, 150 feet north and 2,020 feet east of SW cor. of Section 58, Block 10, E. T. R. R. Survey. Waddington & House's No. 1 J. H. Jenkins, 450 feet north and east of SW cor. NW NE, Section 27, Block 12, T. & P. Survey.

Stephens County

Gardner Brothers & Collins' No. 3 W. W. Cunningham, 250 feet north and west of SE cor. of their lease out of Section 1,210, T. E. & L. Survey. Mid-Kansas Oil & Gas Co.'s No. 4 W. B. Richardson, 330 feet south and east of NW cor. of Section 2, Block 5, T. & P. Survey. Seaboard Oil & Gas Co.'s No. 1 J. M. Tarrant, 660 feet south and west of NE cor. SE NE, Section 122, H. T. & B. Survey. Shaw & Connor's No. 1 W. M. Byden, 330 feet north and west of SE cor. NW, Section 2,957, T. E. & L. Survey.

Stonewall County

McCamey and others' No. 1 J. W. Ward, C SW, Section 153, Block D, H. & T. C. Survey.

Taylor County

Humble Oil & Refining Co.'s No. 1 Mattie Jacob, 330 feet north and 4,400 feet east of SW cor. of J. A. Nabors Survey, No. 11, and located in J. A. Nabors Survey, No. 10. Mitchell & Breene's No. 1 Tittle, C SW, Section 49, Block 19, T. & P. Survey. Owens & Sloan's No. 1 I. T. Latimer, 910 feet north and 330 feet west of SE cor. of the W half of Section 14, Block 9, S. P. R. R. Survey.

Throckmorton County

Consolidated Oil Co., Larkin & White's No. 3 H. E. Congers, 1,235 feet south and 1,565 feet east NW cor. Section 943, T. E. & L. Survey. Humble Oil & Refining Co.'s No. 1 Reynolds Cattle Co., 2,080 feet north and 1,500 feet west of SE cor. of Section 12, Block 2, A. B. & M. Survey, A-1,102.

Tom Green County

Fitzgerald and others' No. 1 Bennett, C SW, Section 1,628, M. S. Behringer Survey. Marland Oil Co.'s No. 1 Llano County School Land, 9,720 feet south and 36,110 feet west of NE cor. of Llano County School Land Survey, No. 964.

Upton County

Independent Oil & Gas Co.'s No. 60 Taylor, 3,620 feet south and 330 feet west of the most easterly NE cor. of S. T. Sapp Survey, No. 6. Marland Oil Co.'s No. 3 Benton Land Co., 990 feet north and east of SW cor. of Julia Prater Survey, No. 1, A-351. Prairie Oil & Gas Co.'s No. 1 J. T. Lane-C, 330 feet south and east of NW cor. SW SW, Section 3, G. C. & S. F. Survey, A-212. Snowden & McSweeney's No. 1 E. S. Hughes, 1,750 feet north and 1,050 feet west of SW cor. of Section 9, Block 3½, C.C. S.D. & R.G. N.G. Survey, being 330 feet south and east of NW cor. of their 80-acre lease out of William Teer Survey, No. 4, A-806.

Wichita County

Magnolia Petroleum Co.'s No. 134 H. Reilly, 2,925 feet north and 200 feet east of SW cor. of J. Ellis Survey, A-175. Bridwell & Mayfield and others' No. 4 J. L. and T. J. Waggoner, 450 feet south and west of NE cor. of the S half of Lot 12, Hezekiah George Survey, A-454. Chenault, Palmer & Burch's No. 5 G. W. Chapman, 200 feet north and 800 feet east of SW cor. of G. W. Chapman's 50-acre tract out of Section 4, H. T. & B. Survey, A-474. Continental Oil Co.'s & M. Rowe's No. 1 Allen & Kemp, 150 feet south and 515 feet west of NE cor. of Lot 8, Block 27, Kemp's Wichita Valley Lands. Dale Oil Corp.'s No. 22 T. L. Burnett, 780 feet north and 1,080 feet east of SW cor. of J. F. Torrey Survey, No. 2, A-787; No. 23, 1,080 feet north and 1,100 feet east of SW cor. of the same survey. T. B. Jackson Jr.'s No. 1 S. I. and H. M. Munger, 4,000 feet north and 150 feet east of SW cor. of Block 24, Kemp's Wichita Valley Lands. Maer & Staniforth's No. 1 A. C. Henson, 645 feet north and 1,850 feet west of SE cor. Section 12, B. S. & F. Survey, A-774. Panhandle Refining Co.'s No. 9 Riley-Griffin, 1,570 feet north and 780 feet west of SE cor. of Lot 6, W. H. Spillers Survey, A-257 and located in Mrs. Floyd Jordan Survey, A-167. Petroleum Producers Co.'s No. 1 "Shallow" M. A. Love-A, 150 feet south and 1,030 feet east of NW cor. of north 40 acres of south 140 acres of M. A. Love's tract out of W. S. Kinnard Survey, A-171; No. 5 "Deep" M. A. Love-B, 150 feet south and 750 feet east of NW cor. of South 25 acres of Lot 11, and located in Lot 17, same survey; No. 6 "Shallow," M. A. Love-B, 25 feet south and 1,145 feet west of NE cor. of Lot 18, same survey. Ryan Petroleum Co.'s No. 9 G. L. Nance, 1,000 feet south and 1,450 feet east of NW cor. of Sam O. Fowler Survey, A-78. C. P. Sheldon and others' No. 3 C. Frankl and others-A, 780 feet south and 750 feet west of NE cor. of Section 327, Waggoner Colony Lands.

Wilbarger County

Fain-McGaha Oil Corp. and others' No. 9 F. Fluhman, 450 feet north and 150 feet west of SE cor. of the W half of Section 30, Block 9, H. & T. C. Survey. Humble Oil & Refining Co.'s No. 15 W. T. Waggoner-O, 480 feet south and 150 feet west of NE cor. of their 40-acre lease "O" out of Section 47, Block 4, same survey. A. T. McDonnald's No. 1 W. T. Waggoner, 150 feet south and west of NE cor. NW NW, Section 7, Block 17, same survey. Waggoner Refining Co.'s No. 8 W. T. Waggoner-A, 1,115 feet north and 2,840 feet east of SW cor. of Section 47, Block 4, same survey.

Young County

R. I. Carter and others' No. 1 T. L. Richardson, 150 feet south and east of NW cor. of J. G. Maysin Survey, A-1,485. King Royalty Co. and Tidal Oil Co.'s No. 29 S. M. J. Benson-B, 450 feet south and west of NE cor. of west 33 acres of the S half of Section 1,450, T. E. & L. Survey. Panhandle Refining Co.'s No. 5 Mrs. O. W. Mathews, 450 feet south and 575 feet west of NE cor. of their 75-acre lease out of A. Rohus Survey, A-240; No. 6, 750 feet south and 575 feet west of NE cor. of their same 75-acre lease. Jacob Oil & Gas Co.'s No. 1 T. F. Weldon, 150 feet north and 1,690 feet east of NW cor. James Ferguson Survey, A-100, and located in W. B. Lytle Survey, A-176. Pitzer & West's No. 1 E. L. Burns, 200 feet south and west of SE cor. of J. B. Norris' 90-acre tract and located on E. L. Burns' 10-acre tract out of Paul Pier Survey, A-219. Seaboard Oil & Gas Co.'s No. 4 M. K. Graham, 150 feet north and 200 feet west of SE cor. of their lease out of M. K. Graham's 285-acre tract out of Sarah Tunkersley Survey, A-278. Sun Oil Co. and Texas Pacific Coal & Oil Co.'s No. 5 G. L. Donnell, 1,450 feet southeast of northwest line and 285 feet southwest of northeast line of Section 1,-212, T. E. & L. Survey.

PITTSBURGH'S PLACE IN PETROLEUM INDUSTRY

(Continued from Page 76)

this way would assuredly be demanded by common prudence."

First Distillation

History relates that in 1847, Thomas and Samuel M. Kier leased a piece of land near Tarentum upon which to drill for salt. Upon this property they drilled two wells to the depth of several hundred feet. In the process of boiling the brine from these wells, a mineral oil would accumulate on the surface of the fluid in the vats. This oil would be skimmed off and thrown into the Pennsylvania Canal that was hard by. Upon some one's throwing a lighted match into this scum, it burned on the surface of the water. Orders were issued to cease this practice with the waste material. For a time this material was accumulated, but the owners could find no market for it. Samuel Kier then submitted samples of it to a Professor Booth in Philadelphia, who advised distillation as a means of developing its illuminating qualities.

Samuel Kier, who it will be discovered as we proceed played an important part in establishing the petroleum industry, was a Pittsburgher, whom, I remember, lived in a house overlooking the Allegheny River near Ewalt, now Forty-third Street. His descendants still reside hereabouts.

Either while awaiting the advice of Professor Booth or procrastinating in

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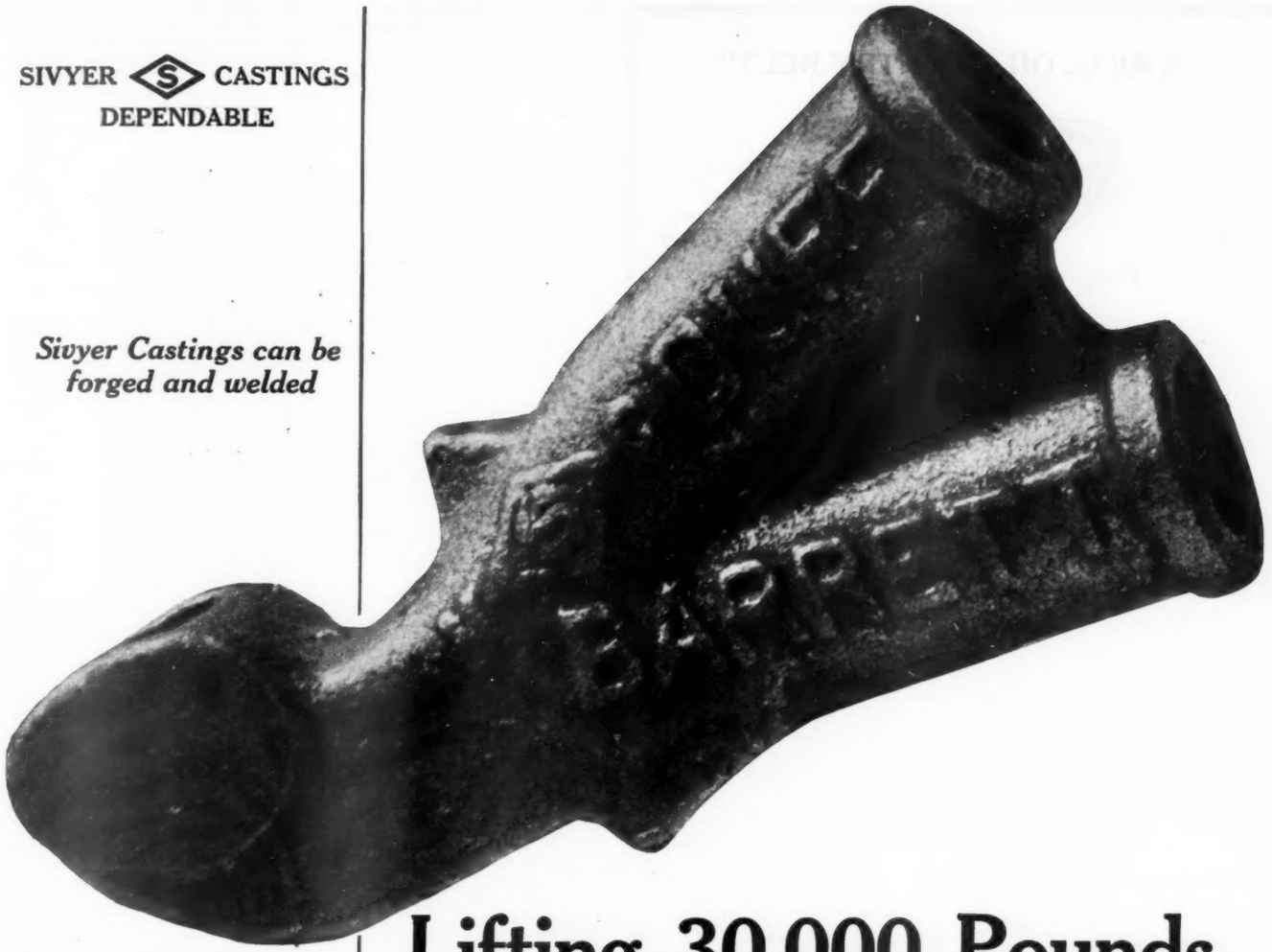

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Alloy runs, small or large, can be handled in the Sivyer foundry. The old "doping the pot" for small alloy runs is gone. Sivyer's one-half ton electric furnace fits the small jobs.

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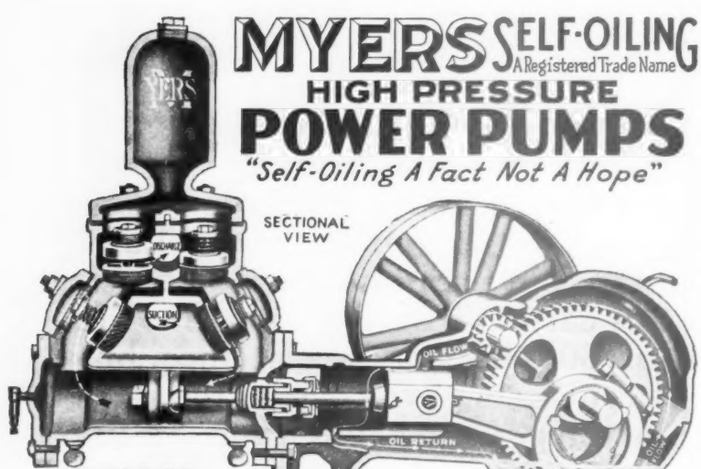

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following it, Kier embarked in a new venture with his oil. He established the business of putting it up in half pint bottles, the label upon which bore the following legend:

"Kier's Petroleum, or Rock Oil, Celebrated for Its Wonderful Curative Powers. A Natural Remedy. Procured from a Well in Allegheny, Pa., Four Hundred Feet Below the Earth's Surface. Put up and Sold by Samuel M. Kier, 363 Liberty Street, Pittsburgh, Pa."

As "Elixir of Youth"

And then followed this striking suggestion that the elixir of youth had been found:

"The healthful balm from nature's
secret spring,
The flow of health, and life, to man
will bring.
As from her depths the magic liquid
flows,
To calm our sufferings, and assuage
our woes."

I have suggested elsewhere that this display in a show window on Broadway, New York, hastened the birth of the oil industry. No doubt this effort at merchandizing caused such a widespread interest in the subject of petroleum, that both enterprise and capital were standing at attention when it was found that petroleum was available in unmeasured quantities for those who would court Dame Fortune.

Kier, in advertising his petroleum for medicinal purposes, used a very unique circular. It was in shape and appearance that of a bank draft, in the center of which were the words in large letters of old English type, "Bank of the Allegheny River," and underneath in small cap letters "Allegheny County, Penna." In each of the four corners was the number "400", apparently representing that amount of money but in the center of the circular one could find that this number referred to the depth of two wells, the derricks of which were pictured upon the upper edge of the circular. At the left edge was the figure of a woman, standing alongside of a shield, which bore the word "Petroleum." At the right was the figure of another woman, with angel wings, holding in her left hand a bottle, filled evidently with this great panacea for human ills.

This circular was dated Pittsburgh, January 1, 1852, and upon it are recorded two important events; one the discovery of the oil in 1848 while boring for salt, and the other the discovery of the medical properties of this oil in 1849.

Inspiration of Industry

We have dwelt in some detail upon this circular, first on account of its value as a record of history and second because, as you will see, it proved to be the inspiration for a great adventure.

In due course of time Mr. Kier followed the advice of Professor Booth and within 100 yards of where we are now gathered, near the corner of Grant Street and Seventh Avenue, adjoining the canal that extended from what is now Eleventh Street, Mr. Kier set up a cast-iron still of 1-bbl. capacity, for experimental purposes, and in 1854 followed it with a 5-bbl. wrought iron still at the same place. Here occurred the first successful effort to refine petroleum, and this was the first refinery. The 5-bbl. wrought iron retort is still doing active duty as a natural gas separator at the gas well of the Salina Brick Works on the Kiskiminetas River. This industry was established by Mr. Kier about 1873, and is operated by his family.

First Carbon Oil Lamps

Mr. Kier evolved a burner for his oil and called his product "Carbon Oil." It may add some interest to this paper should I record that the writer, whose home was within a half mile of some of the refineries in Lawrenceville, retains a vivid recollection of an evening in the fall of 1865, when the members of his family gathered about and viewed with some astonishment and delight the first carbon oil lamp that was used in his home.

It might be well to state at this point that prior to the use of petroleum as an illuminant, successful efforts had been made to distill oil from shales and coal. As early as 1848, patents for such processes had been taken out both in this country and England. The product was called "Coal Oil" and "Kerosene." At the time when Drake drilled his famous well in 1859, there were some 50 such refineries scattered throughout the eastern part of the United States. Six of them were credited to the Pittsburgh district, the largest of all perhaps being that of the Lucesco Co. at Kiskiminetas on the Allegheny River. Its distilling capacity was said to be 6,000 gallons per day. One such refinery was at Lippincots Lane, now called Dinwiddie Street, this city.

Coal Oil Refineries

A review of the location of these plants shows that they were either in the Appalachian coal basin, where coal could be readily had, or at eastern ports, where imported coal could be secured. This industry was short lived, as petroleum, when once it was released from its hidden fastnesses, made short work of it. However, undoubtedly the experience gained hastened the successful refining of petroleum.

It is interesting to note that within the past year, 60-odd years after the early attempts to distill coal for the procurement of oil, a most noted convention of scientists met under the auspices of the Carnegie Institute of Technology in this city to exchange ideas upon the question of how the distillation of coal can be turned to the prevention of what is believed to be an imminent shortage of crude petroleum. Surely there is nothing new under the sun.

The efforts of Lewis Peterson in 1845, and those of Samuel M. Kier following quickly thereafter, were scarcely more than the following of the dictates of a prudent mind, whose thought was to convert this bete noir of salt wells into a by-product whose value might compensate for the burden of getting rid of it. And yet their combined action which dealt with no more than 4 or 5 bbls. a day, while it did not create the petroleum industry, established the necessity for it. Here, therefore, is the first part that Pittsburgh has played in the industry, wherein two of her prominent citizens inaugurated the use of petroleum, both as a lubricant and an illuminant.

Commercial Possibilities

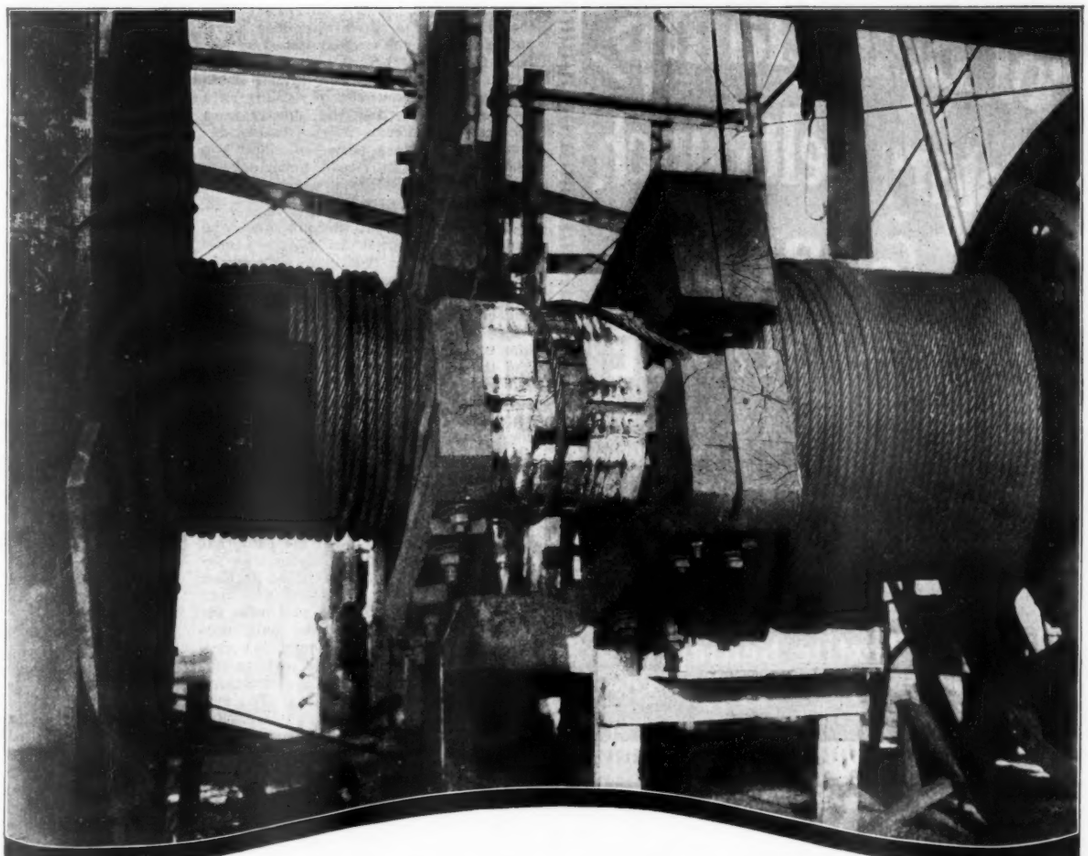
Before leaving the story of the recovery of petroleum from the salt wells at Tarentum, I will relate a few important incidents in relation thereto.

During a visit to Pittsburgh in 1857, Col. A. C. Ferris of New York saw Tarentum oil being burned in a lamp in the cellar of the drug store of Nevins, McKeown & Co., then at 167 Liberty Street (now Liberty Avenue). It is quite probable that this lamp was the result of the efforts of Kier. Colonel Ferris saw the commercial possibilities, and the limited output of the Tarentum wells was before long being refined at New York in a refinery that had previously been used for distilling coal. Meanwhile, the refining of Tarentum crude was being carried on in Pittsburgh at a refinery in Allegheny operated by McKeown of the above firm, and which is said to have been the second petroleum refinery in the United States. We assume that Kier's venture was the first. In the year 1858, which was probably the banner year for the refining of Tarentum crude, the production of it was 1,008 bbls. This was valued at about $30 per barrel.

The first incident leading to the development of the oil regions of Pennsylvania might be said to have occurred in 1853. A farmer in Cherrytree Township, Venango County, in that year made a contract for the collecting, by a ditching process, of the oil from a spring on his farm, he to participate in half of the profits after being reimbursed for his expenses by the other party to the contract. This plan proved unprofitable and was abandoned.

Silliman's Report

On January 1, 1855, a farm of 105 acres near Titusville was purchased for the purpose of developing surface oil, the idea of drilling for a supply not having occurred to the interested parties. In the following April, samples of this sur-



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face petroleum were sent to Professor Silliman, the son of the man previously mentioned. His report, a classic upon the chemistry of petroleum, clearly showed that the mineral possessed great economic value, especially as an illuminant.

In the following year, that is 1856, George H. Bissell, one of the parties interested in this venture, while looking in the window of a Broadway drug store, noticed the famous circular issued by Mr. Kier four years before and to which I have already referred. Mr. Bissell thereupon conceived the idea of drilling as a method of exploiting the subterranean sources of petroleum. After extended discussions covering a period of about two years, Col. E. L. Drake undertook to carry out Bissell's ideas.

Tribute to First Driller

Drake, finding that the only men who had had experience in drilling were those who had followed that class of work in or about Tarentum, went there and succeeded in getting Billy Smith, a driller and blacksmith working for Mr. Kier, to assist him. Smith took his two sons with him to the site chosen for operations. I had the pleasure, last December, of talking with one of these sons, who described their work upon the first well, which was finished on August 28, 1859. While history gives Drake the credit of creating the petroleum industry because he directed the drilling of the well that demonstrated that petroleum could be secured in commercial quantities, Billy Smith, of this county, was the man who actually did the work. So it might be said that the latter created the industry, the necessity for which was established by Kier and Peterson. This first well was very shallow, averaging scarcely 20 bbls. per day, and was probably the only producer in 1859. It was quickly appreciated what even so small a well as this meant in contrast with the Tarentum supply of only 2 or 3 bbls. a day. The mad rush for Oil Creek Field, from farms and cities everywhere, resulted in a production of over a half million barrels in 1860, the year following the first well.

From this well as a starting point, prospecting was carried gradually in a southerly direction through Venango, Butler, Allegheny, Washington and Greene Counties, in Pennsylvania, and into southwestern Ohio and West Virginia. Pennsylvania reached its high mark in production of 33,000,000 bbls. in 1891. Our State is still prominent in oil production. Last year among 19 producing states it stood eighth, and is fourth as to the total barrels produced to January 1 last. In the banner year of 1891, it was the county of Allegheny that was the greatest producer. Within 20 miles of City Hall, several pools were brought in, and the famous McDonald Field capped the climax, making Pittsburgh for the time being the headquarters of the oil industry of the country. Today, with the wonderful Seminole in Oklahoma producing 300,000 bbls. per day, we recall that the peak in the McDonald Field was nearly 100,000 bbls.

Pittsburgh as Oil Center

When the Oil Creek Field was opened, the most expeditious way of disposing of the crude was to boat it down the Allegheny River. The fact that Pittsburgh was already a refining center, operating in distillation of coal, and that Kier and McKeown had experimented successfully there in the refining of Tarentum oil, made Pittsburgh the logical market for the production from Oil Creek, and that city at once became the leader in the oil refining business. The Allegheny River literally became alive with freight, supplies going up to the field and oil coming to the refineries. I have been told that at one time there were not less than 80 steamboats plying on the Allegheny River. We recall the names of some of them, such as the Monitor, Echo, Dick Fulton, Grey Eagle, Monterey, Allegheny Belle, Ida Rees and Hunter. From the Oil City Derrick of March 26, 1863, we learn that during the week previous to that date 13 steam tow-boats and three passenger steamers had arrived, and that there were from 350 to 400 flats, barges and bulk boats engaged in freighting oil to Pittsburgh.

First Cargo of Oil

It is said that the first cargo of crude oil from Oil City boated to Pittsburgh was 60 bbls. brought here in March, 1860, by the steamboat Venango. This oil came from a well owned by five parties, among whom were Charles Lockhart and William Frew of this city.

Before the use of pipe lines, the crude oil was barreled at the wells and the barrels were teamed to points along the streams, where they could be loaded on barges for the trip down the river. Demands by teamsters engaged in this business for higher rates than operators were willing to pay caused pipe lines to be built between the wells and the boat landings, through which the oil would be pumped and then barreled. It was customary to return the empty barrels from Pittsburgh for further use. In 1861, the method of bringing the crude to Pittsburgh in bulk boats of a capacity of 400 or 500 bbls. was adopted. Rail connection between Pittsburgh and the oil regions was not had until 1865, and then it was made in a roundabout way through Greenville and Meadville. In January, 1868, the Allegheny Valley Railroad was opened to Oil City. The shipment of oil by the Allegheny River, which afforded cheap transportation, was a hazardous undertaking during the very high stages of water and impossible during very low stages or when the river was frozen over. The railroad, which followed the river, gradually encroached upon the river trade, it being more reliable. The first oil cars were flats, with a wooden tub of about 8 feet in diameter and 6 feet high over each truck. The horizontal, tubular tank mounted on car trucks came into use about 1871.

Extension of Pipe Lines

As already related, pipe lines were first used in the oil regions to replace teaming. They were of 2 and 2½ inches diameter and but a few miles in length. After the railroads had built their lines into the main valleys of the oil fields, more ambitious pipe lines were built for the purpose of delivering the crude oil direct from the wells to the cars. The success of these local ventures eventually suggested the idea of building pipe lines of larger diameter and much greater length that would compete with the railroads and carry the oil directly from fields to refineries. As methods of terminal operation, the railroads welcomed the pipe lines, and in many cases owned them. But as competitors, they opposed them, which for a long time they managed to do successfully, because this new service was not recognized as a public utility and did not possess the right of condemnation of land. The approach of a pipe line to the crossing of a railroad meant a legal battle.

Powers Run Riot

A pipe line of much interest to this community was the Columbia Conduit Pipe Line, under the control of Doctor Hostetter of this city, planned to bring oil from the Butler County fields to Pittsburgh. This line was built late in 1874. The General Pipe Line Act of Pennsylvania conferring the right of condemnation was not enacted until 1883, some nine years too late for use by this enterprise. When the line reached a point upon the West Penn division of the Pennsylvania Railroad above Montrose, Allegheny County, and an attempt was made to lay its line under the railroad and in the bed of Powers Run, its workers were met with a large force of railroad employes, armed with all sorts of weapons, both offensive and defensive, and the "Powers Run Riot" passed into history as one of the outstanding incidents of the oil industry. The pipe line company appealed to the courts in vain for relief, but six months later the interested companies settled their dispute, the line was put in operation and the delivery of 3,000 bbls. a day to the Pittsburgh refineries was accomplished by means of it.

During the boating days on the Allegheny River, the Duquesne Way wharf was the terminal for Pittsburgh traffic. To be in as close touch as possible with what was happening in the river trade,

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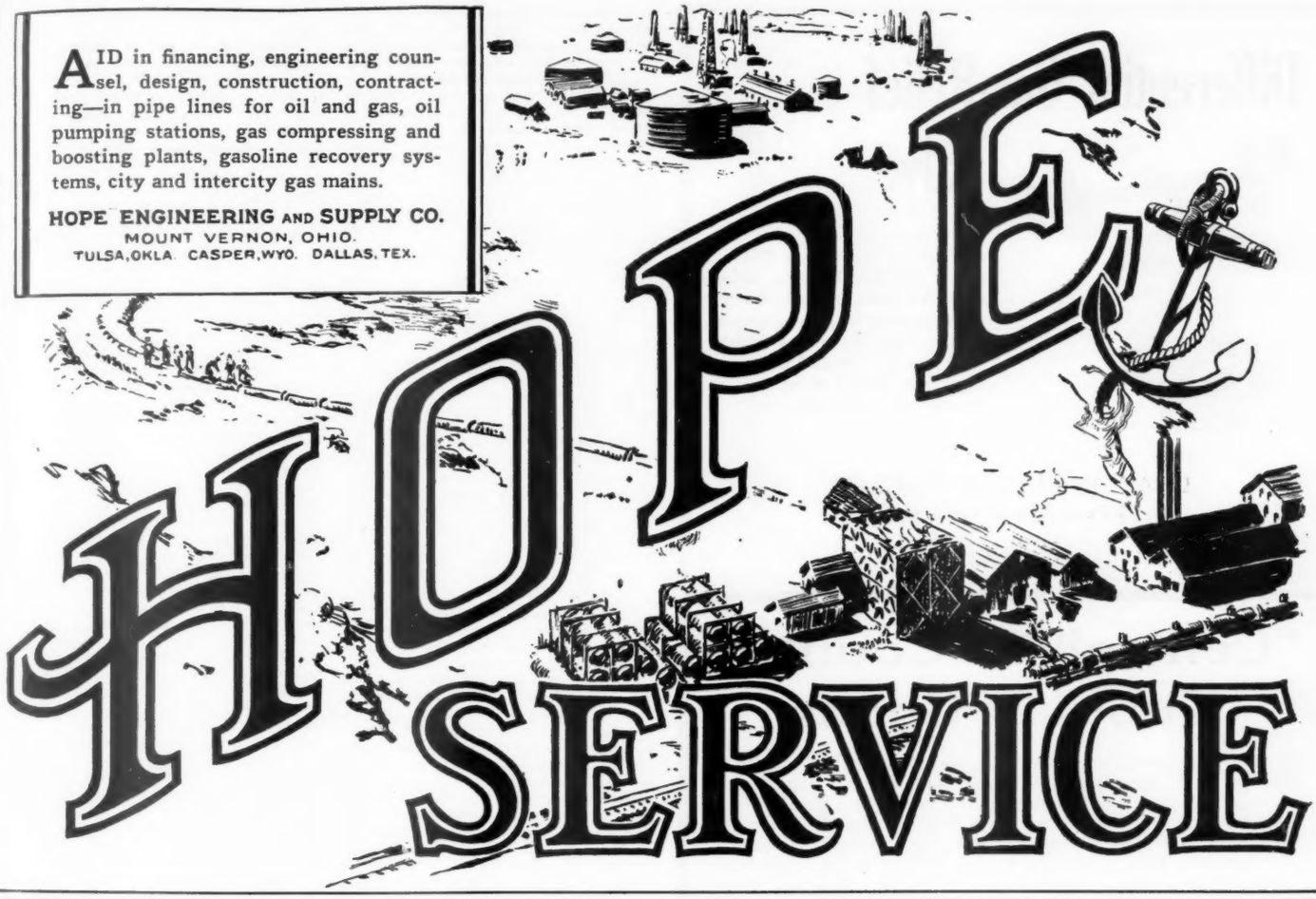

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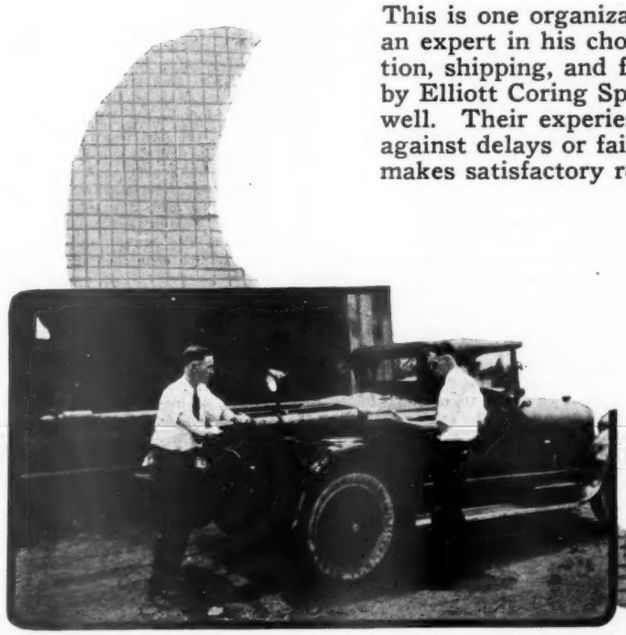

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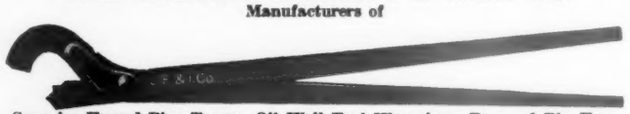

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the refiners had offices on Duquesne Way between Seventh and Ninth Streets. The telegraph companies maintained offices in the heart of this throbbing district.

Curb Market Established

The requirements of the refiners for crude oil and the activities of traders in the commodity caused the establishment of a curb market, the operations of which at times so interfered with traffic between Seventh and Eighth Streets in office hours as to cause Duquesne Way to be abandoned for other purposes. This led to the formation of the Pittsburgh Oil Exchange, perhaps the first exchange of that character in the country. Its shares of capital stock had a par value of $25, the possession of one share entitling the holder to transact business on the exchange. About 1878 the exchange was occupying rooms on the second floor of the Germania Bank Building, corner of Wood and Diamond Streets, afterwards occupied as the home of the Chamber of Commerce. By that time there had been a complete readjustment in refinery locations. The pipe line had become the real factor in transporting crude from the well to the refinery wherever the latter might be located. Therefore, the refineries were located with respect to the demand for finished products rather than with reference to the supply of the raw materials. To Pittsburgh were left only such operations as could be supported by local demands.

"Running the Oil"

The trading in crude oil on the exchange became less and less necessary for the supplying demands of the refineries. An era of combinations of refineries began. To secure crude oil for them, a merging of the interests of pipe line companies was effected. The latter adopted the policy of what is now known as "running the oil." That is to say, that the producer had no concern about what was to become of his oil beyond delivering it into his own working tanks. The pipe line companies relieved him of it by running it to its own storage tanks. Receipts for the oil were evidenced by certificates. These certificates were issued in 1,000-bbls. amounts. They designated the place where the oil was stored, and were transferable. Under the conditions under which these certificates were issued, there was a period of free storage provided, at the end of which time storage charges were made. When the holder of certificates desired the delivery of the quantity of the oil represented by his certificates he paid accumulated storage and advanced the pipeage charges to the point of delivery desired.

It can be readily understood that the value of such certificates fluctuated with the market. Dealing in certificates on the exchange was therefore an alluring game. Incidentally these certificates were accepted as collateral for loans by the banks on a safe margin. Thus the trading upon the floor of the Pittsburgh Oil Exchange became centered in oil certificates. The trading privilege represented by a single share of exchange stock with an original or par value of $25 became so important that these shares sold as high as $3,000. The quarters of the Exchange in time proved to be too small, and a removal to Old City Hall in the Diamond Market was made in 1883.

Petroleum Exchange Formed

About that time a new organization, the Pittsburgh Petroleum Exchange, was formed, with a capital of $150,000,000 and with headquarters in a new building erected especially for it. It started off with 300 members each owning five shares of stock. It opened for business in April, 1884, with a set program that began with an invocation. The story is told that the news of the bringing in of a big well in the Bradford Field had arrived in Pittsburgh shortly before the opening. During the prayer, which seemed long even though it wasn't, orders were being rushed upon the floor from brokers' offices, and the important floor men, with these orders in their hands, were praying for something fatal to happen to the Rev. Mr. Maxwell. No one heard the Amen, for by that time the race for position was on.

The popularity of the new institution proved a death blow to the older organization.

When the interest in trading in oil certificates fell off, the charter was amended and the institution became the Pittsburgh Petroleum Stock and Metal Exchange. It was the parent of the present Pittsburgh Stock Exchange, which remained until 1895 in the location on Fourth Avenue now occupied by a building recently vacated by the Union Trust Co.

Pittsburgh Refineries

In 1860 there were seven oil refineries in this city. History credits Pittsburgh with 58 in 1867. The principal product of these plants was "refined oil," that is, the "kerosene" of the present day. It is to be remembered, however, that with no "flashpoint" having been established by law at that time the practices of that day, while producing a greater yield, resulted in an inferior quality. With the exception of what was needed for local use, this oil went east from Pittsburgh for consumption there or for export. Solid trains of cars loaded with the famous blue barrels went eastward daily. The banner year for this business is said to have been 1867. We recall the names of some of these refineries, such as the Iron City, Radiant, Riverside, Star, Liberty, Peerless, Citizens, Crystal, Brilliant, Cosmos, Vesta, Bear Creek and Central. And there are familiar names of individuals and firms, pioneers of their day, all of whom passed to the great beyond without realizing that the day would come (and is actually here) when benzine, the great hazard of their operations, would, as gasoline, become the basis of perhaps the greatest revolution in commerce and industry the world has ever seen. There were, for instance, Andrew Miller, Dave Reighard, Wormser Meyers & Co., Elkins Flack & Co., John C. Kirkpatrick, Ralston & Waring, J. A. McKee & Sons, Ben Campbell, McKelvy & Co., W. G. Warden, Holdship & Irwin, Andrew Lyons & Sons, Livingston Brothers, Lockhart, Frew & Co., Braun & Co., H. S. A. Stewart, Brooks Ballantine & Co., not to mention many others. The low flash of the crude oil and the careless handling of naphtha products resulted in many fires in the refineries, and it seemed none were immune from such losses. I have, within the past few days, had my attention called to the fact that the Allegheny Valley Railroad Co., whose tracks served all the refineries on the east side of the Allegheny River, had a flat car, fitted with a chemical contrivance that was hurried to every blaze among the refineries. This was used to subdue the flames, as the city fire department could do nothing more than attempt to save buildings in the vicinity of the burning oil.

Great Fire of 1870

One of the outstanding incidents of the local refining business occurred on June 28, 1870, and succeeding days. On the first date the oil in tanks of every plant from the present Fifty-seventh Street to beyond the Sharpsburg Bridge was afire, and for several days a pall of black smoke hung over that great collection of refineries. The burning oil flowed to and destroyed the Sharpsburg Bridge. Dr. Henry Foster, a brother of Stephen C. Foster, was caught and burned to death as the fire enveloped his office.

When the era of extensive pipe lines arrived and it became possible for crude oil from the oil regions of Pennsylvania to be delivered through them to the seaboard refineries at a transportation charge equal to or less than the charge on the crude to Pittsburgh, the local refining business settled down to merely the proportions needed for local consumption and continued at that capacity until the advent of the motor car, since which time the demand for gasoline has increased refinery activities here. The amount of crude per day charged in the refineries of Pittsburgh at this time is about 10,000 bbls., which is undoubtedly as great as in the times when Pittsburgh was the leader in refining.

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and tools that must be fabricated out of wrought and cast iron and steel. The proximity of Pittsburgh to the first oil fields proved to be of great advantage to the oil industry in that its necessities could be easily supplied, and an advantage to Pittsburgh in that it was able to add greatly to the output of its mills and factories. The trade of our Pittsburgh iron and steel manufacturers has not only been maintained with the oil industry since its beginning, but has been increased. The late John Eaton, of this city, was said to be the father of the oil well supply trade. He was connected with it from 1861 until his death. From the days of the Drake well, petroleum has been produced in large quantities in many states of the Union, Mexico, South America, and the Far East. During the almost 70 years of the development of the industry Pittsburgh has followed the flag of the American driller wherever it has been carried. For the past six years the Pittsburgh and Youngstown mills have furnished upon an average of 90 per cent of the tubular goods used in the industry. If to this be added the machinery, tools, tanks, and other equipment furnished by local concerns, it will be found that Pittsburgh's sales to the industry total over $100,000,000 annually. That amount in 1926 was equal to 10 cents a barrel upon the world's production of crude oil in that year.

Pittsburgh Oil Pioneers

While Drake's well was being drilled in 1859, this community manifested a deep interest in its progress. What was more natural than that Pittsburgh enterprise should make a rush for this Eldorado, which Drake's success proclaimed?

Among those who became prominent in the producing business in those days and who were Pittsburghers either before or after their initiation into oil were J. J. Vandergrift, P. M. Shannon, Thomas B. Simpson, Richard Jennings, E. H. Jennings, W. J. Young, John H. Galey, John McKeown, James S. McKelvy, Wesley I. Guffey, David Kirk, John Pitcairn, S. D. Robison, Theodore Barnsdall, Col. J. M. Guffey, and the Fisher brothers, John J., Frederick and Henry.

Speaking of the Fisher brothers, we are reminded that these three entered the oil business in 1862. This concern, in recent years known as the Fisher Oil Co., has continued as a single entity, and is undoubtedly the oldest concern engaged in the oil industry.

Pittsburgh operators followed the drift of drilling from the upper fields of Pennsylvania into Ohio and West Virginia, and some became active as far away as the California fields. After the California developments came Colorado, whose annual production never exceeded 500,000 bbls., then Indiana and Illinois. Pittsburgh capital added greatly in the development of oil in the last two States.

Mid-Continent Development

There had been a few unimportant developments in Texas prior to 1901, in which operators from this vicinity participated. In the year mentioned Guffey and Galey of this city brought in the famous Lucas gusher at Spindletop, rated at 80,000 bbls. per day, and this started Texas upon a career that has maintained it ever since among the first three states in point of volume of production.

In 1904, Kansas and Oklahoma began to look interesting to oil prospectors. Within two years these two states were producing as much petroleum as Pennsylvania and West Virginia, and from that time the Mid-Continent Field has been most prolific. Experienced field men flocked there from the eastern fields, and Pittsburgh capital has been much in evidence there ever since. An old Pittsburgher will find himself much at home on visiting Tulsa, as he will meet many of his old neighbors there.

Mexico became important as an oil-producing country about 1910. Two American companies operating there, backed by Pittsburgh capital, have produced large quantities of oil. One of these ranks second among all American

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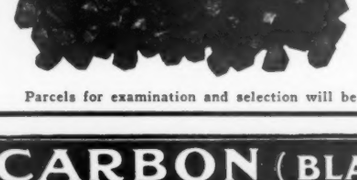

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companies in the total barrels of oil produced to January 1 of this year.

Colombia is one of the latest countries to become important in the oil game. Pittsburghers were the first to develop production there.

Venezuela has produced large quantities of oil during the past few years. On the shores of Lake Maracaibo, Pittsburgh interests are among the leading producers.

Pittsburgh's Place in Petroleum

It would be impossible to show with any degree of accuracy the composite interest that Pittsburgh holds in the petroleum industry. Local refineries have always furnished a considerable percentage of the petroleum products required hereabouts. Many of our fellow townsmen are engaged in the production of oil in different sections of the world. To take a concrete case, the gross production of one Pittsburgh organization was 5.2 per cent of the world's production in 1926. The gasoline output from this company's refineries in 1926 (one of them the largest in the world) was sufficient to have met the combined consumption of the states of Pennsylvania and West Virginia in that year.

So far as is known, Pittsburgh was the first market for American petroleum. More than a century ago, Nathaniel Cary rode into town from Oil Creek with 10 gallons of the fluid strapped to his horse's saddle. As already shown, a half century later quantities of it were coming by water not only by the Allegheny River, but also by the Pennsylvania Canal, along which the Tarentum salt wells were located. Afterwards the railroad handled this product and finally the pipe lines, as we have seen. Perhaps that cycle of transportation has not been equalled at any other time or place, or with any other commodity. In order, there was the horse, the canal, the river, the railroad and the pipe line, and the evolution from the first to the last of the first distinct modes of transportation was achieved with striking rapidity.

Birthplace of Refining

It was here in Pittsburgh that petroleum was first used as a lubricant and as an illuminant. Here was built the first refinery, the location of which can be viewed from the building in which we are gathered. From Pittsburgh in 1860 went the man, Charles Lockhart, who first interested foreign trade in American oil. Doctor Tweddle, a noted chemist of Pittsburgh in the early seventies, made the first lubricating oils by the method of steam and vacuum distillation. His process has not been materially improved upon to this day. From Pittsburgh went the tools and equipment for early Oil Creek operations, and today from our mills and shops goes the larger part of the equipment necessary for production and refining operations both in North and South America.

During the years that have passed since "Uncle" Billy Smith drove the bit to the bottom of the Drake well, Pittsburgh spirit, Pittsburgh courage and Pittsburgh capital have been conspicuous in the development of the oil resources of the world. Surely Pittsburgh has had a major part.

PETROLEUM PRODUCTION ON SAKHALIN ISLAND

Petroleum production in the northern portion of the Sakhalin Island, Okha district, was 600 koku (1 koku equals 39.7 gallons) daily during August, 1926, and increased 1,050 koku in October. The difficulty is in transportation of the oil, as there are no good harbors on the eastern shore, the navigation season is short and even during the season there is trouble with floating ice.

Consideration is being given to a plan to construct pipe lines to the southern portion of the island, but this would be expensive since the pipes must be heated. Another plan is to transport the oil by automobile, and a third to store it in large tanks until the problem is solved. In the meantime, it has been decided to

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lay a pipe line from the wells to the seashore, 2.5 miles.

The chief geologist of the Japanese oil concession on Sakhalin Island has stated that oil production there is developing, one of the eight sections of the concession producing 150 tons of oil daily. During the coming summer more than 400 square miles is to be prospected, according to Moscow reports.

Oil Possibilities At Comanche Point And Wheeler Ridge

As it is probable additional exploratory wells will be drilled in search of oil in the southern part of San Joaquin Valley, California, the geological survey has made an investigation in that region in order that the expenditures may be made as fruitful as possible. Results obtained by Geologist H. W. Hoots indicate two areas are sufficiently promising to merit test drilling.

The two areas lie near the south end of the valley—one near the northwest margin of the Tejon Hills, in Kern County; and the other in Township 11n-22w, and Township 10n-21w. San Bernardino Meridian, west of the Wheeler Ridge oil field. The general geology and geography are indicated by a reconnaissance geologic map of the south end of San Joaquin Valley, published in Bulletin 471 of the Geological Survey, which is out of print and now available only in libraries.

Comanche Point Area

As shown by the Caliente topographic map published by the Geological Survey, the Tejon Hills form a prominent ridge between Comanche and Tejon Creeks, in the southeastern part of Township 32s-29e. Mount Diablo Meridian, and geologic study has shown that near Comanche Point, the northwest end of this ridge, there is an anticlinal fold which, according to projections of section lines into El Tejon grant, lies near the C N half, Section 23-32s-29e. This fold appears to be the culmination of a broad anticlinal arch which trends westward across the Tejon Hills from the granite of the Sierra Nevada. West of Comanche Creek, in Sections 25 and 26, there are several minor anticlines which probably are not favorable for the accumulation of oil.

Presumably the major Comanche Point anticline, in Section 23, is cut off at the margin of the hills by a northeastward-trending fault which is believed to separate the hill area from the San Joaquin Valley lowland in this vicinity, but it is possible the anticline may continue west of the supposed fault and may lie hidden beneath the alluvial cover mantling the valley floor. The part of this anticline lying east of the fault appears to be the most favorable place for a test well, and geologic study indicates that a well 1,000 feet or less in depth, near C N half, Section 23, would test the possible oil content of the lower part of the Miocene Vaqueros formation there and would probably encounter the underlying granite basement. It is also possible three or more shallow core-drill holes located near the west line of Section 23 and farther west and northwest might show that the anticline which is visible in the hills continues westward beyond the fault and that a deep test well there is warranted.

In view of the amounts of oil and gas found by the Globe Petroleum Corp. in its well south of Tejon Creek, in what corresponds to the southwestern part of Section 31-12n-18w, San Bernardino Meridian, and the possible existence of a southwestward-plunging anticlinal arch in this general locality, it also seems possible that small yields of oil may be obtained by shallow wells drilled along Tejon Creek west of the largest of the northward-trending faults visible in Section 31-32s-30e, Mount Diablo Meridian.

San Emigdio Creek Area

The valley of San Emigdio Creek opens onto the San Joaquin Valley lowlands in Townships 10n-22w and 11n-22w,

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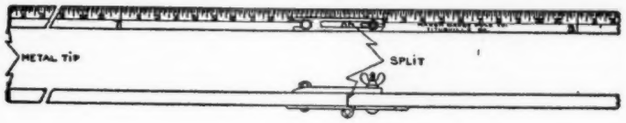

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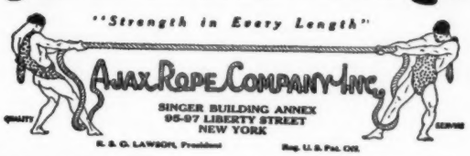

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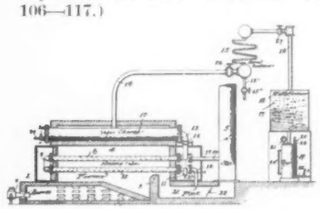
some 10 miles west of the Wheeler Ridge oil field, as shown by the geologic map accompanying Geological Survey Professional Paper 116; and examinations made north and west of the mouth of this valley suggest the presence of a buried anticline extending from a point near the CEL, Section 25-11n-22w, past the SW cor., Section 25 and through the northern parts of Sections 33 to 35, probably passing near the Milham Exploration Co.'s No. 1 well in Section 32. The existence of buried structural features in this locality is indicated by steep dips shown in cores taken from wells drilled west of San Emigdio Creek, and the most probable position of a concealed anticlinal axis appears to be just south of the steep topographic slope in the southern parts of Sections 25-11n-22w, and 26-11n-22w. This slope is continued in the ridge that projects westward into the northern part of Section 34, constricting the valley of the minor watercourse that crosses that section. Detailed topographic mapping of the southern third of Township 11n-22w, would indicate much more clearly than available maps the existence and the position of those rather obscure surface features that may reflect a buried anticlinal fold. Core drilling, however, is necessary to locate accurately and define any fold that is present and to give indication as to its structural form and value as a possible site for the accumulation of petroleum. In view of the possible existence of an unconformity at the top of the Tulare formation and another at the top of the Maricopa shale, a deep well drilled for oil in this locality may be able to test the Etchegoin formation, Maricopa shale, and Vaqueros formation.

Pleitito Creek Area

The geologic map accompanying Professional Paper 116 (this report is out of print, but can be found in many libraries) suggests the presence of an anticlinal fold east of San Emigdio Creek, in the northern part of the foothills. This fold, which since the issue of Professional Paper 116, has been found to be sharp and very much overturned throughout its length, curves across the southern part of Sections 31-11n-21w and 32-11n-21w, and passes near the SE cor., Section 32 and into Section 4-10n-21w. East of Pleitito Creek and northwest of C, Section 4, the fold appears to end abruptly against a fault parallel to the one shown in Professional Paper 116. From the evidence collected it seems possible that oil may have accumulated along the fold near the fault, and that a well located just east of Pleitito Creek and 500 to 1,000 feet south of the anticlinal axis may have a slender chance of being productive.

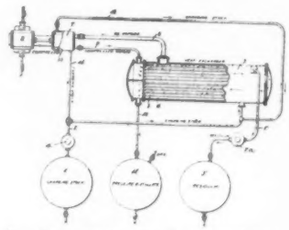
RECENT PATENTS

1,619,929. Apparatus for Treating Petroleum Oil. Hiram J. Halle, New York, N. Y., assignor to Universal Oil Products Co., Chicago, a corporation of South Dakota. Filed September 1, 1920. Serial No. 407,329. Renewed September 18, 1926. 2 Claims. (Cl. 106—117.)



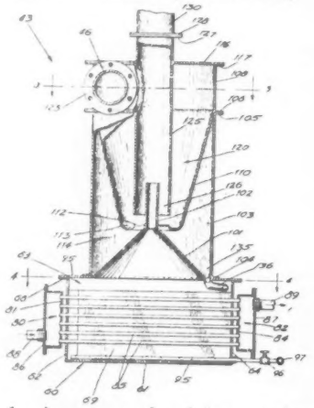
1. In an apparatus for cracking petroleum oil, the combination with a coil located in a furnace through which oil is continuously passed, of a second coil disposed within said oil coil forming an annular oil passageway, spirally arranged spacing lugs carried by said second coil, to space the same from the oil coil and act as baffles for the oil passing through said annular passageway, a flue leading from the furnace, means for withdrawing heated gases from said flue to be passed through said second coil to internally heat the oil passing through said annular passageway.

1,619,896. Process for Converting or Cracking Hydrocarbon Oils. Walter Edwin Trent, Washington, D. C., assignor to Trent Process Corp., New York, N. Y., a corporation of Delaware. Filed September 27, 1924. Serial No. 740,383. 5 Claims. (Cl. 196—61.)



1. A process of oil conversion, consisting in passing charging stock through a heat interchanger where a portion thereof is vaporized, in subjecting said heated vapors to a compression sufficient to raise the same to a cracking temperature, and in passing said vapors to said heat interchanger to supply heat to vaporize the charging stock.

1,620,163. Process of and Apparatus for Refining Petroleum. Frank A. Milliff and John A. Milliff, Los Angeles, Calif. Filed January 11, 1926. Serial No. 80,502. 4 Claims. (Cl. 196—139.)



1. A process of refining petroleum comprising: Applying heat to the petroleum to drive off hydrocarbon vapors therefrom; cooling the mixture of vapors thus formed to a predetermined temperature; causing said vapor mixture to suddenly expand and rotate at an accelerating speed over a given distance to separate out condensate formed by cooling the vapor mixture; collecting said condensate; and causing said vapor mixture to impose a partial vacuum upon said condensate which communicates with said vapor mixture.

LEGAL

COMMISSIONER'S SALE.
ALLEN CIRCUIT COURT.
NOTICE OF SALE.
THE COMMONWEALTH OF KENTUCKY.
No. 3473
Richard C. Baker, Plaintiff,
Versus
Inter-Cities Oil Co., Defendant.

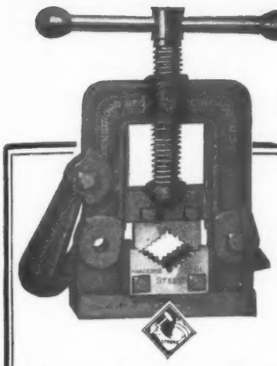
By virtue of a judgment and order of sale of the Allen Circuit Court, rendered at the January Term thereof, 1927, in the above cause, for a settlement of the affairs of the Inter-Cities Oil Co., I shall proceed to offer for sale at the Court House door in the City of Scottsville, Kentucky, to the highest bidder, at public auction on Monday, the 11th day of April, 1927, at One O'clock, P. M., or thereabouts (being County Court Day), upon a credit of 3 and 6 months, the property of the Inter-Cities Oil Co., being an up-to-date Oil Refinery, with all property and accessories, including pipe lines, usual and common to such properties.

The personal property will be sold in units at the Refinery at Scottsville, Kentucky, and small bidders will therefore have a chance to buy such articles as they may need. Inventory may be seen at the office of the undersigned.

Purchasers may pay cash at their option, or execute usual bond.

Witness my hand this 21st day of March, 1927.

G. W. WEAVER,
Master Comr., Allen Circuit Court.



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Northern Oil Information Bureau
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RUNS BY PIPE LINES IN SOUTHWEST TEXAS

SAN ANTONIO, Tex., Apr. 2.—Average daily production of the Luling Field in Caldwell and Guadalupe Counties for February was 18,266 bbls. compared with 18,692 bbls. daily average for January, as shown by the monthly pipe line runs. There were 535 wells producing in February and 529 wells producing in January. During February, 10 new wells were completed and 4 old wells abandoned.

Atlantic Pipe Line Co., which up to the last of January was running oil from the field, has abandoned its pipe line and the oil from its patrons is being taken by Grayburg and Magnolia lines. Total runs by pipe line companies for February and the number of wells running to each are as follows:

Companies	February Total Wells	February Daily runs	January Total Wells	January Daily Runs
Magnolia	520	15,119	421	15,247
Grayburg	79	2,353	66	2,155
Rio Bravo	26	794	26	840
Atlantic	...	...	16	450
	535	18,266	529	18,692

Daily average production of the Luling Field and the number of wells producing for the months is as follows:

Months	No. Wells	Daily Average
February	535	18,266
January	529	18,692
December	523	18,128
November	514	18,115
October	509	19,179
September	500	20,811

Lytton Springs

Pipe Line runs from the Lytton Springs Field in Caldwell County for February averaged daily 2,400 bbls. from 329 wells. Magnolia Pipe Line from 218 wells ran 1,800 bbls. and Humble from 111 wells ran 600 bbls. The number of wells producing in the field has remained unchanged for 6 months. Daily average runs from the field for the past six months were as follows:

Month	Daily Average Runs bbls.
February	2,400
January	2,635
December	2,775
November	3,075
October	3,295
September	3,860

In storage at Luling, which includes oil from the Lytton Springs Field, at the close of February was 1,394,422 bbls. compared with 1,350,787 bbls. at the end of January. Of the storage at the end of February was 324,930 bbls. of Mirando crude compared with 371,078 bbls. at the end of January and 29,203 bbls. of Lytton Springs crude at the end of February compared with 116,391 at the end of January. All but 4,000 bbls of the total storage is held by the Magnolia.

Mirando Pipe Line Runs

Total pipe line runs from the Mirando district for February (28 days) was 310,878 bbls., a daily average of 11,102 bbls., compared with 371,018 bbls. for January (31 days) and a daily average run of 11,968 bbls. Total number of wells producing in January was 596 and in February 589.

Daily average pipe line runs for months and number of wells producing are as follows:

Month	No. Wells	Daily Average
February	589	11,102
January	596	11,968
December	619	12,392
November	593	14,653

February runs from the Mirando Field by companies was as follows:

Company—	Runs
Texpata	26,156
Magnolia	130,972
Humble	95,587
Crown Central	50,800
Houston Pipe Line	6,157
Laredo Pipe Line	1,206

February runs by pools in the Mirando district for February and the number of wells producing in each and total recovery from the pools to February 28 follow:

Pool	Monthly	No. Wells	Daily	Total Runs To Date
Schott	26,196.84	110	935.6	3,493,349.04
Aviator	75,389.72	142	2,692.4	2,345,805.18
Mid Ojuelos	21,112.24	69	754.0	1,712,120.24
Wolcott	5,261.84	17	187.6	532,639.40
Mirando Valley	3,690.64	17	131.8	463,148.73
Henne-Winch-Fariss	59,875.24	97	2,138.4	2,469,869.24
Randado	113,040.00	131	4,037.1	1,175,341.73
Cole	6,157.00	6	219.8	161,669.96
Carolina-Texas	165.00	...	5.3	19,165.00
Charco Redondo	...	...	...	4,545.00
Total	310,878.52	589	...	12,377,653.52
Average daily production for the field				11,102.78 bbls.
Average daily production by well				18.8 bbls.

LEASE IN LAKE BED NOW IN LITIGATION

SHREVEPORT, La., Apr. 2.—On the petition of the Gulf Refining Co., Judge W. Carruth Jones in District Court at Baton Rouge, La., issued an order restraining Governor Simpson and Fred J. Grace, registrar of the State Land Office, from leasing or advertising for lease any portion of the bed of Lake Fausse Pointe in Iberia Parish.

According to the petition, the Gulf Refining Co. recently leased the bed of the lake and brought in an oil well. The company claims its lease included the whole bed but that now the governor and registrar are planning to lease portions which they claim were not leased to the Gulf Refining Co.

TECHNOLOGISTS' EXAMINATION

The Civil Service Commission announces that applications for positions as petroleum technologist (production or refining), $3,800, associate petroleum technologist (production or refining), $3,000 and assistant petroleum technologist (production or refining), $2,400, must be on file with the Civil Service Commission at Washington, D. C., not later than April 26. Competitors will not be required to report for examination, but will be rated on their education, training, and experience; and publications, reports, or thesis to be filed with the application.

NEW HUMBLE TANK FARM

McLEAN, Tex., Apr. 2.—The Humble Pipe Line Co. has a crew of men camped on the Kinard farm, 8 miles north and 3 miles east of McLean in Gray County, for the purpose of installing a tank farm. Two carloads of material have already arrived in McLean and 10 more cars of material are in transit.

Statement of the Ownership, Management, Etc., of
THE OIL AND GAS JOURNAL
April 1, 1927

(This statement is published in compliance with the Act of August 24, 1912.)

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Stockholders holding 1 per cent or more of total amount of stock: The Patrick C. Boyle Estate, Oil City, Pa., Robert W. Egan, Tulsa, Okla.

Known bondholders, mortgagees and other security holders, holding 1 per cent or more of the total amount of bonds, mortgages or other securities: None.

W. T. BRYAN,
Treasurer.

Sworn to and subscribed before me this 28 day of March, 1927.

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Notary Public.

My commission expires May 15, 1930.

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At Your Supply House

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Statement for January

Runs

Company—	Month	Dy.Ave.
*Prairie P. L. Co.	4,340,000	140,000
Gulf P. L. Co.	1,376,740	44,476
Texas P. L. Co.	729,724	23,539
Magnolia Pet. Co.	1,618,217	52,201
Empire P. L. Co.	978,713	31,571
Cosden P. L. Co.	874,641	28,214
Sinclair P. L. Co.	2,021,913	65,223
*Other lines	12,152,000	392,000
Total January	24,093,948	777,224
Total December	21,543,154	694,941
Difference	2,550,794	82,283

Shipments

Company—	Month	Dy.Ave.
†Prairie P. L. Co.	4,850,793	156,477
Gulf P. L. Co.	1,272,109	41,036
Texas P. L. Co.	552,426	17,820
Magnolia Pet. Co.	1,462,529	47,178
Empire P. L. Co.	718,643	23,182
Cosden P. L. Co.	889,518	28,694
†Sinclair P. L. Co.	2,615,441	84,369
*Other lines	10,912,000	352,000
Total January	23,273,458	750,756
Total December	20,901,529	674,242
Difference	2,371,929	76,514

Stocks

*Prairie Oil & Gas Co.	28,195,000
*Prairie P. L. Co.	2,000,000
Gypsy Oil Co. and Gulf P. L.	7,421,895
The Texas Company	3,190,163
Magnolia Petroleum Co.	3,284,287
Empire P. L. Co.	2,588,657
Cosden P. L. Co.	2,314,159
*Sinclair Crude Oil Purchasing Co.	18,400,000
Carter Oil Co.	14,016,439
*Other lines	9,000,000
Total January	90,410,600
Total December	88,414,470
Difference	1,996,130

*Estimated. †Sinclair shipments include Wyoming and Texas oil, and Prairie shipments include Texas oil.

Note—Stocks do not include approximately 3,600,000 bbls. of crude oil held in private tank farms and leases, and 2,250,000 bbls. of Texas Panhandie crude in storage in Kansas and Oklahoma.

EASTERN PIPELINES
Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for January and February:

	Jan. '27	Feb. '27
Nat. Transit	131,633.26	139,482.60
S. W. Pa. P. L.	91,671.32	86,131.61
Eureka P. L.	356,257.54	360,073.04
Buckeye P. L. (Macksburg)	306,320.21	306,133.22
Buckeye P. L. (Cleveland)	8,898.60	9,641.13
Buckeye P. L. (Lima, etc.)	105,316.84	118,280.53
Indiana P. L.	7,885.73	10,308.90
Cumberland P. L.	269,494.29	253,098.35
N. Y. Transit	20,624.12	20,720.01
Tide Water P. L.	164,816.27	166,244.50
Pure Oil	181,623.77	150,656.96
Emery P. L.	51,721.92	50,806.49
Paragon Dev.	29,152.24	27,518.82
Pittsburgh P. L.	4,492.56	5,450.00
Stoll Ref.	12,571.47	11,799.41
Total	1,742,480.14	1,716,345.62
Daily average	56,209.04	61,298.06

Note: Indian Refining Co. also reported other receipts of 318,692.38 bbls. Paragon Refining Co. had other receipts of 111,806.74 bbls. Paragon Development had other receipts of 1,727.51 bbls. Pure Oil had other receipts of 23,458.34 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for January and February:

	Jan. '27	Feb. '27
Nat. Transit	339,689.42	301,540.53
S. W. Pa. P. L.	376,678.56	332,520.45
Eureka P. L.	185,046.54	189,772.61
Buckeye P. L. (Macksburg)	152,046.86	143,321.85
Buckeye P. L. (Cleveland)	728.46	735.84
Buckeye P. L. (Lima, etc.)	836,059.08	766,275.55
Indiana P. L.	996,930.49	899,418.14
Cumberland P. L.	170,916.10	149,258.83
N. Y. Transit	268,721.23	134,606.31
Northern P. L.	146,042.27	149,470.27
Tide Water P. L.	142,906.68	118,783.21
Pure Oil	185,495.89	187,941.11
Emery P. L.	56,726.35	48,549.33
Paragon Ref.	162,514.12	125,377.69
Indian Ref.	327,021.57	296,038.10
Paragon Dev.	26,199.57	29,126.84
Pittsburgh P. L.	4,316.92	6,213.32
Total	4,378,040.11	3,878,949.98
Daily average	141,227.10	138,533.93

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky, at the close of January and February were as follows:

	Jan. '27	Feb. '27
Nat. Transit	958,639.67	1,009,705.83
S. W. Pa. P. L.	783,090.22	746,374.61
Eureka P. L.	1,283,959.42	1,326,061.87
Buckeye P. L. (Macksburg)	418,744.17	435,819.09
Buckeye P. L. (Cleveland)	60,087.54	76,981.10
Buckeye P. L. (Lima, etc.)	3,048,045.04	3,227,532.22
Indiana P. L.	563,842.08	584,982.76
Cumberland P. L.	584,088.08	606,176.77
Southern P. L.	418,089.38	420,485.22
N. Y. Transit	576,728.60	661,277.88
Northern P. L.	423,641.24	426,553.78
Pure Oil	472,351.27	459,193.89
Emery P. L.	6,125.26	6,932.77
Paragon Ref.	38,841.67	24,907.55
Indian Ref.	66,887.83	91,489.53
Paragon Dev.	10,670.92	11,007.61
Pittsburgh P. L.	4,170.61	3,679.88
Total	9,718,003.00	10,119,162.36
Increase	263,490.81	401,159.36

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of January and February, showing the gross stocks of the above fields:

	Jan. '27	Feb. '27
Pennsylvania	3,703,521.72	3,708,705.44
Lima	741,567.39	798,170.33
Kentucky	1,034,892.99	1,056,674.37
Mid-Continent	4,134,204.33	4,451,184.17
Illinois	103,816.57	104,428.05
Total	9,718,003.00	10,119,162.36

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1924	1925	1926	1927
January	62,638	56,831	55,630	56,209
February	68,023	60,606	60,394	61,298
March	68,721	60,575	61,644	.....
April	71,058	63,062	63,019	.....
May	63,942	59,217	60,580	.....
June	63,230	61,270	64,131	.....
July	64,208	62,639	63,206	.....
August	59,942	59,686	61,815	.....
September	62,930	62,510	64,639	.....
October	64,976	60,995	62,704	.....
November	56,282	59,350	61,774	.....
December	55,814	57,974	58,755	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1924	1925	1926	1927
January	145,518	157,889	156,056	141,227
February	148,732	160,863	159,488	138,534
March	147,098	154,591	150,239	.....
April	147,611	151,429	152,371	.....
May	134,997	146,995	160,998	.....
June	143,010	149,467	160,257	.....
July	124,187	161,338	160,945	.....
August	123,120	161,730	161,929	.....
September	127,325	156,719	158,915	.....
October	123,170	145,388	161,132	.....
November	124,400	143,582	152,668	.....
December	161,392	150,162	136,428	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1925	1926	1927
January	11,353,276	9,859,170	9,718,003
February	11,192,924	9,579,354	10,119,162
March	11,158,297	9,438,292	.....
April	11,062,082	9,805,851	.....
May	11,207,562	9,531,757	.....
June	11,093,796	9,585,904	.....
July	11,067,453	9,734,687	.....
August	10,974,481	9,668,947	.....
September	10,781,763	9,433,732	.....
October	11,086,850	9,269,806	.....
November	11,068,158	9,257,667	.....
December	10,458,445	9,454,512	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line Co. at the close of business for the months named and not counted in the stocks and averages reported above.

1926—	Runs	Shipmts.	Stocks
February	2,580.23	2,776.19	12,819.45
March	2,754.62	1,732.77	13,841.30
April	3,137.40	4,519.68	12,459.02
May	2,933.29	2,096.35	13,296.96
June	3,217.62	1,655.15	14,858.43
July	3,025.86	4,075.11	13,809.18
August	2,886.59	2,121.21	14,574.56
September	2,788.18	3,373.06	13,985.68
October	2,991.86	2,307.75	14,671.25
November	2,810.60	1,664.55	15,817.31
December	2,847.52	5,561.11	13,103.72
1927—			
January	2,641.54	1,470.42	14,274.84
February	2,764.30	1,082.82	15,956.32

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, March 1	2,661,980.68
Runs from wells	570,400.72
Other receipts	426,905.04
Regular deliveries	402,200.33
Other deliveries	591,721.73

The amount of Illinois oil run by the Tide Water Pipe Co. in February was 25,430.44 bbls. and deliveries were 74,750.38 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1926—	Runs	Deliveries
February	632,611.99	506,310.51
March	753,300.74	524,625.95
April	610,957.04	487,604.00
May	632,416.67	498,456.90
June	693,102.34	558,054.94
July	713,490.66	490,092.82
August	701,795.92	555,766.59
September	688,798.66	516,083.05
October	681,648.96	531,467.19
November	651,263.33	498,439.37
December	668,909.58	587,947.61
1927—		
January	621,421.03	530,085.98
February	595,831.16	476,950.71

The Tide Water Pipe Co., Ltd., laso delivered in February, 249,851.65 bbls.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

	ATLANTIC PORTS						GULF COAST PORTS					
Average bbls. per day—	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
November	6,400	16,600	27,633	23,533	17,300	91,467	.....	.....	.....	.....	.....	91,467
December	13,646	7,129	39,646	7,419	9,774	77,613	.....	.....	.....	.....	.....	77,613
January	5,097	8,258	26,290	15,932	14,807	70,355	.....	.....	.....	806	806	71,161
February	26,214	3,036	32,750	8,571	18,250	88,821	.....	.....	.....	.....	.....	88,821

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

	ATLANTIC PORTS						GULF COAST PORTS					
Average bbls. per day—	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
November	14,867	7,167	55,967	5,700	27,433	111,133	18,133	35,200	2,500	2,900	58,733	169,866
December	13,484	10,613	56,129	7,452	24,064	110,742	12,548	40,742	2,902	10,839	67,032	177,774
January	16,032	8,226	64,387	4,065	31,064	123,774	7,903	43,629	.....	4,123	55,645	179,419
February	12,000	14,429	87,286	5,321	26,714	145,750	4,786	46,786	2,143	3,607	57,322	203,072

GROSS PRODUCTION OF THE UNITED STATES FOR 12 MONTHS

(IN BARRELS)

1926—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
March:	Month	18,825,786	14,312,886	11,014,238	3,334,827	5,115,837	1,889,636	3,161,250	3,349,000	61,003,520
	Daily average	608,283	461,706	355,298	107,577	165,027	60,956	101,976	108,032	1,967,536
April:	Month	18,091,771	14,468,190	10,799,760	3,330,120	5,127,510	1,969,570	3,231,404	3,183,000	60,191,325
	Daily average	603,059	482,273	359,992	111,004	170,917	65,319	104,239	106,100	2,006,327
May:	Month	18,667,144	14,507,908	11,940,797	3,516,640	5,482,939	2,231,938	3,459,489	3,317,000	63,122,955
	Daily average	602,166	467,966	385,187	113,440	176,869	71,998	111,596	107,000	2,036,224
June:	Month	18,369,417	14,073,510	11,782,200	3,346,470	5,044,760	2,206,830	3,437,905	3,365,000	61,546,092
	Daily average	606,981	469,117	392,740	111,549	168,122	73,561	114,597	112,167	2,051,536
July:	Month	18,743,199	14,657,482	12,988,759	3,582,267	5,019,893	2,173,811	3,336,664	3,420,000	64,917,076
	Daily average	604,619	472,822	451,089	115,557	161,932	70,123	107,634	110,323	2,094,099
August:	Month	18,765,030	14,613,236	17,093,586	3,581,436	4,878,191	2,190,739	3,457,697	3,329,500	68,024,665
	Daily average	605,325	471,556	551,406	115,756	157,361	73,896	111,538	107,726	2,194,338
September:	Month	18,104,954	14,466,610	17,580,100	3,460,060	4,602,230	2,079,840	3,141,123	3,330,000	66,755,817
	Daily average	603,498	482,217	586,003	115,002	153,441	69,328	104,704	111,000	2,225,194
October:	Month	18,966,068	15,720,689	19,001,388	3,714,637	4,625,128	2,166,589	3,071,720	3,398,000	70,664,189
	Daily average	611,808	507,119	612,948	119,827	149,198	69,889	99,088	109,613	2,279,490
November:	Month	19,173,128	16,876,950	18,598,160	3,592,490	4,299,490	2,054,911	3,043,587	3,216,000	70,649,706
	Daily average	639,104	562,565	619,772	119,783	143,316	68,497	94,752	107,200	2,354,990
December:	Month	20,276,950	17,883,903	19,763,591	3,654,156	4,266,189	2,018,734	2,658,301	3,213,000	73,833,839
	Daily average	654,095	576,868	637,213	117,876	137,619	65,120	85,752	106,371	2,381,414
1927—										
January:	Month	20,184,872	19,030,745	18,546,920	3,668,323	4,076,469	1,905,570	2,610,303	3,332,500	73,355,772
	Daily average	651,125	613,895	598,290	118,333	131,499	61,471	84,203	107,500	2,366,315
February:	Month	17,982,711	19,752,348	16,483,292	3,349,416	3,574,256	1,784,104	2,385,135	3,007,200	68,318,462
	Daily average	642,240	705,441	588,689	119,622	127,652	63,718	85,183	107,400	2,439,945
Total 12 months		226,051,070	190,367,462	186,572,861	42,221,902	56,133,891	24,662,244	36,793,578	39,570,200	802,373,208
Daily average		619,318	521,554	511,159	115,677	153,792	67,513	100,804	108,412	2,198,283

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